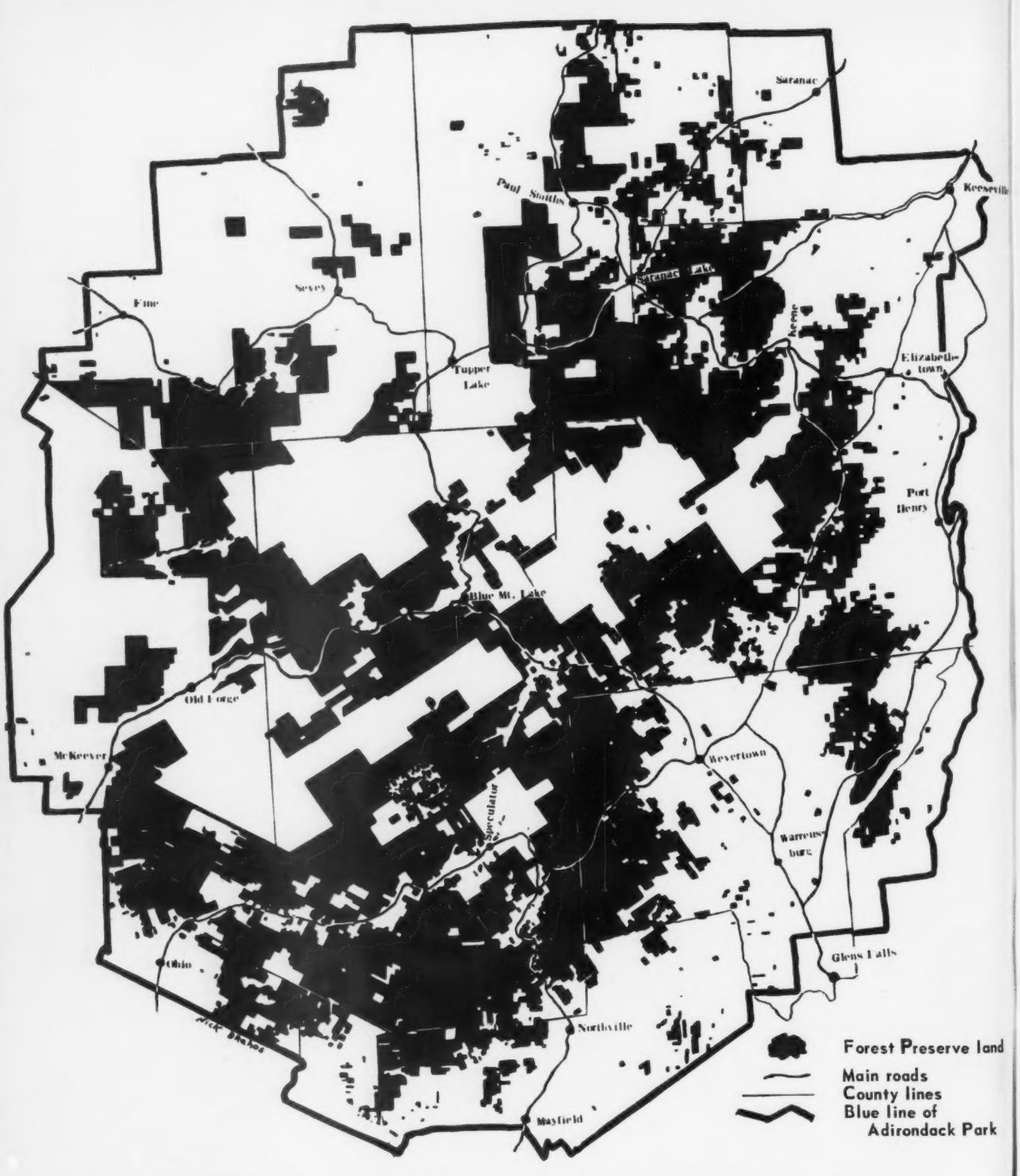
THE NEW YORK STATE

Conservationist

December-January 1951-1952

STATE OF NEW YORK, CONSERVATION DEPARTMENT



This is the Adirondack Park, with State-owned (Forest Preserve) lands in solid black. Note the "shotgun" pattern of State ownership, and the large areas of private land (white) in between or surrounding the State parcels

FOREVER WILD (2)

On the following pages we begin what we hope will be a free, open and fruitful discussion of the management of the Forest Preserve, a discussion without hysteria.

We in the Conservation Department are initiating this discussion because we think we ought to. As public servants appointed by law to be custodians of this property, we feel that we are in exactly the same position as the man who is designated guardian of a trust fund: it's part of his job to have a look, from time to time, to see if the investments in the trust are yielding the maximum return to the beneficiaries. In this instance, whether we like it or not, we in the Conservation Department are the appointed guardians; the Forest Preserve is the investment; the beneficiaries are *all* the citizens of New York State.

As guardians, we feel it proper to inquire if the beneficiaries are getting the most out of their investment. If we should not ask this question, then who should?

We are fully aware, however, of the difficulties and general unpleasantness that will almost certainly result from our opening this discussion. We will be accused of attacking the Forest Preserve, putting out propaganda, selling out to commercial interests, betraying the public, and so on. Nevertheless, we feel that in view of our moral and legal obligations we should say what we know about the Forest Preserve, and also what our experience and training lead us to believe might be done to improve it.

We attempt to do this on the following pages. In our subsequent issues we will publish the opinions of people outside this Department—many of whom will no doubt disagree heartily with what we have had to say. So much the better; that way, we should be able to get at most, if not all of the facts and opinions relevant to sound management of the Forest Preserve. And that way, too, we feel that this magazine will be fufilling its proper function.

Meanwhile, it will be apparent to readers of this issue that there are those of us in the Conservation Department who feel that the Forest Preserve, although very good, could be made very much better. We believe, among other things, that its forests could be made and kept healthier, and that in doing this a modest income might be realized that could be plowed back into our property; that wildlife in the Forest Preserve could be made more abundant than it is now; that provisions could be made so that more stockholders, now unable to use and enjoy the Forest Preserve, might be able to do so in the future.

Furthermore, we believe that these things could be done without impairing in any way the "Forever Wild" character that all of us associate with the Forest Preserve.

And that brings us to a final point that we would like to make crystal clear; Let no one assume that the Forest Preserve, Forever Wild, means less to us than it does to him. Such an assumption would be utterly false.—Editor

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NO STAMPS, PLEASE

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STATE OF NEW YORK
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CONSERVATION DEPARTMENT, PERRY B. DURYEA, *Commissioner*
J. VICTOR SKIFF, *Deputy Commissioner*, ROBERT A. WELLS, *Secretary*

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Permission is granted to reprint any text from this magazine provided proper credit is given to the New York State Conservation Department and to this magazine.

The Conservationist is an official publication of the N. Y. S. Conservation Dept., published every two months at the Department's offices, Arcade Bldg., Albany, N. Y. No advertising accepted. Subscription rate $1.00 per year. Entered as Second Class matter July 24, 1946, at the Post Office at Albany, N. Y., under Act of March 3, 1879. Printed in U. S. A.

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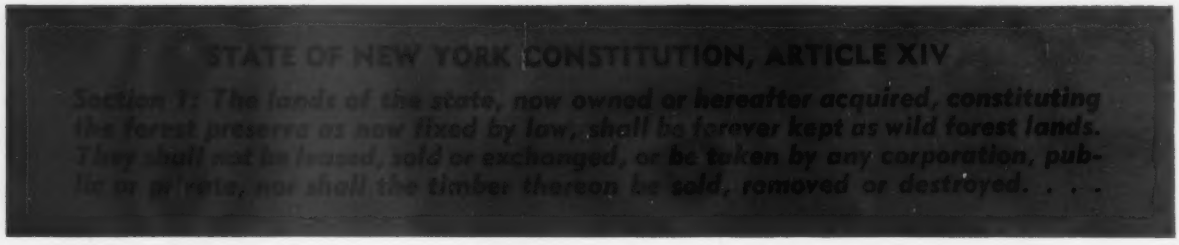
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OUR PURPOSE

IT is not an agreeable job to conduct an examination of our policy with regard to the Forest Preserve. More than likely, it will be a thankless job as well.

The main difficulty is this: Any suggestion that the laws governing the use of our Forest Preserve may need revision—any such suggestion is regarded in some quarters as an "opening wedge," a prelude to an attack on the integrity of the Forest Preserve itself. For years, the feeling in such quarters has been that Article XIV of our Constitution, as well as the Forest Preserve which the article governs, should be left strictly alone. Those who feel this way have had little trouble in selling their ideas to the public; after all, the Forest Preserve is without question our most valuable common holding, and if anyone publicly states his doubts as to our present management policy for this holding, it is very easy to represent (or misrepresent) this person as an enemy of the People.

This sort of organized sentiment toward the Forest Preserve has had one disastrous result: It has discouraged—to the point of eliminating—a free and clear expression of views with regard to the management of this property of ours. I regret to report, but feel that I should do so, that I have found many people both within this Department and outside of it who are afraid to speak their minds on the management of the Forest Preserve, simply for fear of persecution in one form or another from those who may disagree with them.

I do not feel that this situation can be tolerated any longer. Our Forest Preserve belongs to all of us, and it is far too valuable a holding to allow its management to become the exclusive concern of any one group or any one class of opinion. If the owners of the Forest Preserve cannot sit down and discuss freely and clearly the operation of this property, then there is something very wrong—not with the Forest Preserve, but with us, its owners.

Pursuing these lines of thought, the editorial in our last issue posed four questions with regard to the management of our Forest Preserve. Article 3, Section 50 of the Conservation Law states that the Conservation Department shall "have the care, custody and control of the several preserves," and I therefore feel that it is my responsibility to see that these questions are answered right here in the Department, to the best of our ability, and without fear, favor or prejudice. This is what we have done; the questions and our answers appear on the following pages.

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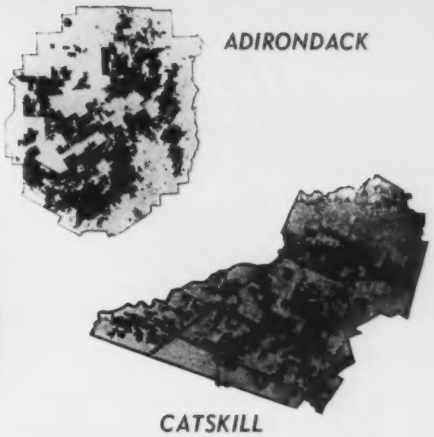
WHAT IS THE FOREST PRESERVE?



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Many people think of these Forest Preserve areas as solid blocks of State-owned lands. But the fact is that the State owns only 40 per cent of the total area within the Adirondack Blue Line; the remaining 60 per cent is privately owned, and these private owners have exactly the same rights to cut timber as landowners elsewhere in the State. In the Catskill Park the relationship between State and private holdings is: State, 43 per cent; private, 57 per cent.

In other words, the Forest Preserve is not a solid block in either the Adirondacks or the Catskills. On the contrary, State holdings form a sort of "shotgun" or "crazy quilt" pattern in relationship to private land. (See second cover.)

There is another popular misconception concerning the Forest Preserve: Although the Constitution says that it shall be forever kept as wild forest land, much of it does not answer that description at all, and probably never will. After you cross the Mohawk River on Route 9, on the north side there is a State-owned quarter-acre parcel of land that is adjacent to a public dump. This land is now grown up to burdocks and other weeds. This was a mandatory acquisition, bought—as were many other small parcels—at a period when legislation prescribed such acquisition at county tax sales. Yet this quarter-acre piece of State-owned land is as much a part of the Forest Preserve, and equally subject to the dictates of Article XIV, as the wildest tract we own.

Included in the Forest Preserve, therefore, is a wide variety of holdings, ranging all the way from scrub lots along main highways to whole townships of real wilderness. These lands have been bought as the Legislature provided funds from year to year, or through bond issues, as property became available at reasonable prices.

The State acquired a few areas of virgin timber—such as the big pine country in the upper Oswegatchie region and the spruce of the High Peaks country—but this was the exception rather than the rule. Most Forest Preserve lands had been lumbered to some extent before the State bought them, with the result that the forest cover on such tracts is now mainly second growth, or stands containing old growth hardwood where the softwoods had been removed. There are also large State-owned tracts where burns of various degrees of intensity have produced a transient type of forest growth, characterized mainly by aspen, birch and a gradual infiltration of softwood. And there are the "double-burns," as found in some sections of the Cold River country, where fire burned so deeply half a century ago that only brakes have grown there ever since.

Originally, of course, both the Adirondack and Catskill regions were covered by the forest primeval—what the forester refers to as the "climax" forest, the fully developed tree community. This condition is reached when the tree species best suited to a particular locality have occupied the land sufficiently to prevent the establishment of other species. It is the condition which all forests may be expected to attain eventually, barring the incidence of lumbering, fire, storm, insects or disease that may upset the natural succession.

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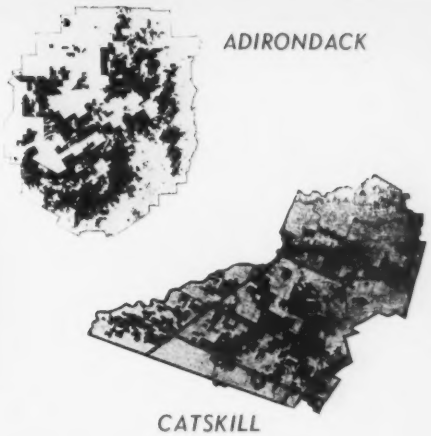

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question 1

If our Objective is the Preservation of our Forests, are Forests best Preserved by Prohibiting Cutting?

LET'S tear this one apart: First, what do we mean when we say that we want to "preserve our forests?" A forest is two things: It is a community of trees, and it is the particular kind of environment which those trees help to create. The character of this environment will differ widely according to the kind of tree-community, or *forest type*, that is maintained there. The forest type is determined, in turn, by natural factors over which nobody has any control, and by the impact of man-made activities, which are controllable.

Now, when we talk about "preserving our forests", if we mean the perpetuation of *the undisturbed forest environment*, or "wilderness" as the forester would define it, then our task must be to keep the human species out of it insofar as we can, or at least curtail man's activities rigidly while he is there. The latter is what we are doing when we carry out the enforcement of Article XIV, Section 1.

But look at the forests for a moment from the other angle—from the viewpoint of a tree community. Are we best preserving this by leaving it alone? The recent history of the tree communities of the Adirondacks would hardly support an affirmative answer. If the old-growth stands of spruce hadn't gone down last November, during the windstorm, the *Dendroctonus* beetle would have done the job just as effectively, a little at a time. Many of the hardwood stands are in equally bad shape, from fungous and insect pests which are the concomitants of over-maturity. These stands, though wild enough in appearance to suit the nature-lover, are characterized principally by old-growth trees which, however picturesque, represent nothing but "culls" in the foresters' terminology: rotting beech, dying birch, and "conky" maple. Specimens like these can hardly be said to constitute a forest that is well "preserved". It is the second growth, on parts of the Forest Preserve that have been lumbered in the past 50 years, that is the most sound.

Admitting then, that a natural forest is not always the best one, how would the professional forester go about making it better, if he had the chance? This would vary within wide limits, depending on the particular condition existing in specific areas. In the High Peaks region, no forester in his right mind would propose any cutting at all. He would write this off as "protection forest", knowing that any logging disturbance there would cause irreparable harm to the soil, to water conservation and to scenic values. At the other extreme, in the over-mature hardwoods on lands with relatively little topography, he might recommend clearcutting, since no operation less drastic would serve to rehabilitate these run-down stands. Only then would there be a chance for new, vigorous seedlings to develop, and there would be plenty of these after logging, without artificial planting, so long as fire was kept out.

In between these extremes, the forester would carry out various degrees of partial cutting. These might be (a) "harvest cuttings", where a designated portion of the mature timber is removed in a commercial operation, or (b), "improvement cuttings" where the poorer specimens are taken out to favor the good ones, or (c) "thinnings", where the number of trees in an immature stand is reduced in order to allow fuller development of the remaining ones. The forester's objective in much of the Adirondacks would be to favor the regeneration of spruce—the most valuable wood crop, and incidentally, good for game cover and pleasing to the eye—against the encroachment of the more aggressive hardwoods. The attainment of this objective requires the application of certain measures such as controlled cutting, rigid protection of the young spruce growth, and girdling or poisoning of over-mature, unmerchantable hardwoods — techniques which are well known to the profession and have already been demonstrated successfully in commercial pulpwood operations on private lands adjacent to the Forest Preserve.

Let's get one thing straight, though: *a logging job is a logging job, no matter what you call it;* and to the "protectionist" the woods may look just as bad right after "scientific forestry" as they would following a plain, old-fashioned lumbering operation. It all depends on what kind of eyes you look through. After one of the partial cuttings we have described above, the trained forester will see a fine "residual stand" or an army of new seedlings coming up, while the "protectionist" will see only devastation and brush-piles. Usually, the forester is thinking about the trees, the "protectionist" is thinking about the environment, although in some persons there is a nice harmony of these views.

This brings us back again to the original proposition: If we want to preserve the *primitive character* of the Forest Preserve, we should stick to our guns and keep logging out of it altogether, or at least out of those portions that we wish to maintain as "wilderness." On the other hand, if we want to preserve the *woods themselves* in a condition of optimum health and vigor (please note that I am talking biology, not economics), we had best get in there with the axe and chain-saw, and the sooner the better.

The Forest Preserve covers a lot of territory, with an amazing variety of conditions. Some of it deserves to be kept as wilderness, for reasons already mentioned, and in order, also, that the harassed and benighted city-dweller may see the primeval forest in its original state, and perhaps find there the peace of mind and inspiration that such an environment can provide. But there are many other sections of the Forest Preserve which are not "wilderness" in the true sense, which do not protect critical watersheds (i.e. where the slopes are so steep that any disturbance should be avoided), and which have no outstanding aesthetic values. Managed cutting in these areas would not appear to be detrimental in any degree to the recreational use of the Forest Preserve, or its scenic beauty, but would accomplish a great deal for the improvement of the forest.

F. W. LITTLEFIELD,
Supt. Forest Management

question 2

What is meant by "forever wild?" Does it suggest an abundance of birds and animals, and if so, does our present management policy promote that objective?

"WILD forest land" connotes many things to many people. To some it suggests solitude and an absence of the earmarks of civilization; to others, virgin timber and crystal streams; to still others, a hunters' paradise. But to all it savors of the wilderness and an abundance of wildlife. Moreover, Section 3 of Article XIV of the Constitution states "Wild life conservation and reforestation are hereby declared to be policies of the state. . . ." Therefore, one may assume the State has an obligation to promote and maintain wildlife abundance on its Forest Preserve lands.

This is especially true with respect to game. Present demands for hunting have increased many hundred fold since 1885—a fact which it was impossible for those who framed the original legislation setting aside the Forest Preserve to foresee. So also has the prevalence of posting on private lands increased greatly. Because of this, as well as the fact that much of the latter territory within the "blue line" is poorly managed for game production, private holdings cannot satisfy the need for hunting opportunity. Neither could even optimum management on them do the job for the large interior State-owned tracts. Furthermore, Forest Preserve lands constitute by far the largest area on which the State can guarantee future generations an opportunity to hunt.

The virgin forest, however, was not a great wildlife reservoir nor can the restoration of such forest conditions be expected to produce game abundance. Many species of small birds and mammals were relatively common. Significant, however, is the fact that wildlife, and especially the species now important as game, tended to be plentiful about the natural openings, glades and stream courses. But through the forest generally, with its closed canopy and sparse undergrowth, game was scarce.

In general, Forest Preserve lands now support a much greater abundance of wildlife, and especially game, than they did in their primeval state. Over much of the area lumbering before it was acquired by the State gave rise to more ground cover and an undergrowth of young trees and shrubs—the food producing plants so essential to both big and small game. Nevertheless, better deer range would have resulted if more green timber had been left, especially in the swamps and river bottoms where it would supply needed winter shelter. The increase in wildlife abundance that has accompanied the changed character of Forest Preserve lands illustrates a fundamental biological principle, namely the close interdependence between the type of plant growth and the animal populations that occupy a given unit of range. Plants are vital to animals for both food and shelter. This is especially true for those animals, among which are the State's most important game species, that depend directly on vegetation for food. These species thrive best in those intermediate stages of forest succession which provide an abundant undergrowth of shrubs, sprouts and berry bushes, as well as low-growing evergreens.

In view of these known requirements for the production and maintenance of a good game crop it is obvious that a fully mature forest would provide them to only a minor degree. Therefore, to strive for that goal in the Forest Preserve does not represent good game management.

Yet, wildlife is a by-product of forestry and large-scale manipulation of forest lands can seldom be justified economically for wildlife alone. While small scattered cuttings are best for maintaining productive game environment, such a pattern would often be impractical to create. But lumbering over large continuous tracts should be avoided as far as possible. The more that cutting could be done after a "shot gun" pattern of small units, the better. Game thrives best in mixed hardwood and coniferous cover of uneven age with many edges. Restoration of a thriving mixed stand of timber is also an objective of good forestry. Conifers should be encouraged, especially in the lowlands, and in general removed only when mature and even then not on a clear-cut basis. In cutting, emphasis should be placed on hardwoods both because hardwood sprouts and shrubs are the chief browse producers and because opening up the forest floor to sunlight is necessary to promote coniferous reproduction. Such treatment could be carried on and still leave the margins of lakes, ponds and major trails untouched in the interest of their scenic value. At the same time, it must also be recognized that there is a need for preserving examples of primeval conditions for purposes of biological record and study. But this need could be met by reserving stategically located portions of the Forest Preserve rather than the whole. By collaboration the forester and the game manager can work out integrated management plans which would benefit wildlife and sacrifice little in the harvesting of wood products and other values.

Many people fear that any modification of present policy would destroy the wilderness character of the Forest Preserve. This is true only to the extent that a virgin forest is considered to be the only acceptable form of wilderness in this area. Yet, to the majority, something short of virgin conditions would still be a wilderness—the chief requisite of which is the opportunity to get away from civilization—and good game management is certainly compatible with such a concept.

In summary, the biologist must conclude that present land management policy in the Forest Preserve is not one that in the long run will promote and maintain an abundance of wildlife. Game management, however, could be incorporated in a modern forest management program which would help materially to that end. And not only the hunter, but outdoor lovers in general, would enjoy a greater abundance and variety of wildlife at all seasons of the year.

—ROBERT W. DARROW,
Supervisor of Game Research
—ARTHUR W. HOLWEG,
Supervisor of Game Management

question 3

Under This Policy, Are We Making the Most of the Potential Recreational Value of the Forest Preserve?

NO. The reason is simply that Article XIV makes no provision whatever for the development of recreational facilities except for the amendment providing for skiing on Whiteface and Belleayre mountains. Furthermore, the specific prohibition against the cutting of trees and the directive to maintain the lands forever wild, if literally observed, obviously rule out the clearing of land for campsites and trails and the taming of the landscape with a leanto.

How is it, then, that possibly a million trees have been cut, for a thousand miles of hiking and fire truck trails, public campsites and the like? We are told that they were justified originally for fire protection.

Actually the recreational facilities now available on the Forest Preserve are there mainly by sufferance. To justify their development, a half-century of opinions by Courts and Attorneys-General shows that many men have had to bend far over backward to meet growing needs. As far as the Constitution is concerned, it is clear that the position of recreation, by far the most important use to which the Forest Preserve can be put, is definitely precarious. Article XIV simply fails to provide any mandate about it.

We must assume (as have our Courts and Attorneys-General) that the framers of this Article failed to make explicit provision for recreational development merely by oversight. The Article was written half a century ago, before the automobile, when State holdings were relatively very small, and when none could foresee the sharp upward trend in the popularity of outdoor recreation. Within only four hours, the automobile now can bring more than one-seventh of the nation's entire population to the entrances of the Forest Preserve. But only a chosen few actually can enter.

This small use, it seems clear, can be attributed to the physical or psychological inability of most people to use directly or indirectly the facilities for public comfort, safety and convenience now available.

To correct this situation, the natural question is what kind of facilities do we propose. First, it is our conviction that they should be in keeping with the spirit of wilderness use. The State, we feel, definitely should keep out of the closed cabin or hotel business on the Forest Preserve.

We suggest such facilities as special campsites with standard tent platforms and community rainy day open shelters, trails and facilities for pack horses in certain areas, canoe portages with tracks and push cars at a few points, (such as we had in the old days), docking and entrance facilities on main accessible water areas, adequate shelters on certain mountains with blankets and cooking tools to relieve handicapped hikers of heavy packs prohibiting trips they'd like to make but can't, more open leantos along the easier trails with first-aid and information stations with attendant Rangers, nature trails and demonstrations at campsites and parking areas at roadside trail entrances.

Perhaps the main incentive to use the Forest Preserve is the harvest of its fish and wildlife resources with rod, gun, binocular and camera. Future pressure on this resource is bound to increase sharply because private lands are being constantly limited to this sort of public use. So it is extremely important that this resource be managed to promote as great a sustained yield as possible. (See answer to Question 2).

Development of all this is not constitutionally possible, or at least not without further stretching the interpretation of Article XIV.

The need to add some sort of specific safeguard—a direct mandate regarding public use of the Forest Preserve—has been increasing for 50 years. Many attempts to amend Article XIV have been made. All but five failed, probably because they were so elastic that the public feared, and rightly, that the gate might be opened to private gain on the Forest Preserve or to reduction of its wilderness character. Too much latitude was left to the judgment of unknown officialdom.

This experience should guide us.

There are, of course, many ways to change Article XIV to provide, acceptibly, Forest Preserve recreation for the most possible people today and tomorrow. One way, it occurs to us, would be to devise an airtight plan of zoning, say to three degree:

1. Wilderness areas locked tight and untouchable, as they now are, but with a constitutional blessing on primitive facilities.

2. Management areas limited to certain forest, fish and game management practices by the State which would retain or (we believe) enhance the wilderness aspects of the Forest Preserve and insure the healthy permanence of its forests and wildlife.

3. Recreational areas, requiring even less than one per cent of the Forest Preserve, specifically designated along certain highways, points of water entrace and the like where readily accessible non-commercialized recreational facilities could be developed of a kind in keeping with the atmosphere of the Forest Preserve.

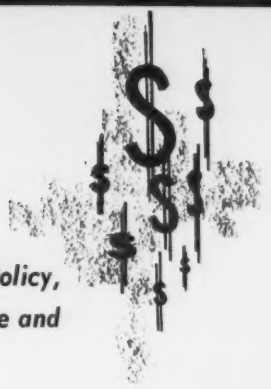
A representative committee could be named to draw up tentative and specific zoning plans by geographical boundary, contours or both. The plans should be thoroughly aired for public scrutiny and debate during a period sufficient to reach popular agreement.

Any proposal should leave nothing whatever to the future judgment of individuals concerning the use of present and future Forest Preserve lands.

We cannot afford, ever, to destroy the basic, forever wild philosophy guarding the management of our mountain wilderness. But we sincerely believe that Article XIV must now be fitted to our needs. If we do it carefully and take our time, we can make far greater and wiser use of its potential for wilderness recreation—and stay within specific constitutional limitations while we're doing it.

—Clayton B. Seagears,
Dir., Conservation Education,
—William Mulholland,
Supt., Camps & Trails

question 4



How Does the Present Management Policy, as Prescribed by the Constitution, Contribute to the Economic Needs of State and Nation?

ASKING this question is like asking, How much is your wife worth to you? We don't think the real value of the Forest Preserve can be expressed in dollars and cents, we don't believe that anybody ever intended that its value *should* be so expressed, and we hope that nobody will ever attempt to reduce the Forest Preserve to mere dollars and cents. We certainly won't.

Nevertheless, as a part of this discussion, we should inquire into the role of this property in our economy and explore any possibilities for making it better serve itself—and us.

For one thing, there are more than a million New Yorkers who live in the Forest Preserve counties and whose livelihood depends directly or indirectly on the operation of the Forest Preserve. (In most discussions, this fact is overlooked.) Furthermore, no matter how much all of us would like to remove the Forest Preserve from the mundane field of economics, it was, is, and unquestionably will continue to be an extremely important factor in the economic development not only of the Forest Preserve counties, but of the whole State.

In the Forest Preserve we have a capital investment of $21,204,000, representing cost of land acquisition and facilities erected by this Department. We have already paid 46 millions in taxes on this property, and annually pay maintenance charges (largely taxes) of $1,778,000. The investment has been a good one. It has increased considerably in value, and has paid off in watershed protection, water supply, erosion control, flood control, enhancement of the resort business, and above all, in recreation—in the true sense of that word.

The presence of the Preserve obviously has a direct effect upon the economy of northern New York. The two biggest industries there involve recreation and the production and processing of forest products. Recreation is so important that much of the region operates under a "boom-and-bust" economy; monthly bank deposits and employment figures show a "boom" for the short summer season and a "bust" for the rest of the year. This makes it very difficult for the service industries (the butcher, baker, etc., which serve both residents and visitors) to operate on a sound basis. The forest industries are more stable.

Students of the Adirondack economy stress the importance of developing additional forest industries within the area to process more of the raw materials which are now shipped outside, and point to the fact that State lands (which now comprise 40 per cent of the timberland) could contribute valuable raw materials and employment if a portion of these lands could be put under forest management. Development of the forest industries, they contend, would put a more stable floor under the service industries and enable them to better serve both the recreationist and the community. In short, anything which can be done to increase recreation or strengthen the forest industries will improve the economy of the region.

This brings us to the consideration of the answers to the preceding questions insofar as they touch on our economy. While written from different points of view, there is general agreement on a number of points:

First, parts of the present Preserve lands should be preserved as completely as it is in man's power to do so. Therein lies their greatest value for all time.

Second, there is agreement that elsewhere in the Preserve there are lands on which the productivity of the forest itself, and the wildlife which it supports, can be enhanced by the application of forest and wildlife management principles which have now gained general professional acceptance and wide use. Among other things, this would mean the cropping of some of our forests on a sustained yield basis, and that in turn means at least some income. In line with Commissioner Duryea's suggestion, we feel that any such income should go back into the Preserve.

It may be well at this point to dispel the rather common notion that the Preserve, as it now stands, contains a gold mine in forest products. On the contrary, the hurricane levelled much of the mature timber, and foresters point out that the yearly growth increment of spruce and balsam in the Adirondacks will not average over a fifth of a cord per acre per year. The old hardwoods grow even slower.

Nevertheless, if public policy should be altered so that forest management could be practiced on portions of the Preserve, at least some income would result. This would be modest and irregular, but would be helpful in building a greater Preserve. And whatever forest products were made available would become increasingly valuable to wood using industries of the region as importation becomes increasingly more difficult and expensive.

A third important point is that the recreational use of the Preserve as a wilderness can be increased. In the future, as in the past, public recreation will unquestionably be one of the most important contributions the Preserve can make to the economy of our entire State.

To return to the question at the top of this page—and accepting the validity of the answers to questions 1, 2 and 3—we conclude, first, that the Preserve has already proven a fine investment and even under present public policy has great economic usefulness.

Second, there are definite opportunities to build a still greater Preserve, of still greater usefulness to our people, and still have our wilderness. These opportunities deserve exploration by the finest minds of our generation. To contend that such exploration is unnecessary or undesirable on the basis that our forebears of a half century ago could perfectly plan for the care and use of the Preserve today—that is to contend that the world has stood still during a period when we know that great social, economic and scientific changes have taken place.

—J. VICTOR SKIFF,
Deputy Commissioner

speaking of COYOTES

THERE have been several articles in this magazine about coyotes. As I see it, the significant points in these articles are (1) that we've got coyotes—or something like coyotes—in New York; (2) that they don't seem to be very desirable citizens; and (3) that the way to control them is by trapping.

The trapping business is where I come in. But although I think coyotes can be controlled by trapping, it's going to take quite a few trappers and quite a lot of trapping. State trappers like myself need some help, and the reason I'm writing this article is to tell anybody who wants to how they can lend a hand.

I'll start right off with some remarks about traps; use the strongest trap N. Y. law allows. Coyotes have been caught in #2's, but since a coyote fights against a trap from the time he gets into it until the time he gets out of it or until you get him out of it, ordinary #2's really aren't strong enough. An adult coyote is about three times as heavy as a fox and about five times as strong, and I've seen plenty of #2 traps that they've broken or bent or just simply gotten out of. Furthermore, a lot of traps that have been made since the war are made out of stamped sheet steel which leaves the jaws with a sharp edge; if you have to use a trap like that, file off the jaws so they fit square.

New traps should be boiled in water to loosen the oil or lacquer that's put on them at the factory as a preservative. Rusty traps need boiling and scraping too. Make a "tea" by putting some soft maple, sumac, hemlock or oak bark (I prefer soft maple) in a bag and steeping it in a pot of boiling water. Bark gathered in the fall is best for this purpose; it seems to have more dye and oil at that time of year than at any other.

Boil the bag of bark for an hour or so. Then let the brew steep for a couple of hours. The "tea" ought to be as black as possible. When you've got it that way, throw in a few chunks of bees' wax, put the traps in and let them boil until they take on a good black color. That usually requires about five minutes. Then take the traps out and let them cool gradually. When the traps come out there will be a very fine film of wax all over them. That's what you want, and practice will show you how much wax to use.

About sets; I use two kinds—the scent post set and the dirt hole set. I prefer the scent post set. This should be made as close as possible to where the coyotes are traveling or crossing. Shoulders of sandy woods roads and railroad beds, edges of flowed land, sandy beaches on lakes or rivers and unused skid roads are very good. A good location for the scent post set is some place that has brush or tall weeds on one side so the coyote will have to go to the other side to get to the scent post. That's where you make your set—on the other side.

Dig a flat, shallow hole in front of the scent post, just big and deep enough to bury the drag, trap and chain. The pan of the trap should be about six inches in front of the tuft of grass or whatever it is you use to sprinkle the scent on—your scent post. Bury the drag and chain, then steady the trap in the hole so that it's about a half inch below the ground surface. And tamp down the sand around and over the trap as firmly as possible. If you don't, it will settle in a day or two and the outline of the trap will show.

Then cover the pan with a piece of canvas or some other material and sprinkle dry sand all over the set. Then brush the whole set with a handful of ferns or goldenrod so that the ground around the set looks just the same as it did before you put the trap down. That means brushing away your tracks too, of course.

Last of all put the scent on the scent-post, and you're ready for business. This set will catch the smart ones very nicely.

The bait hole set seems to work best in burns and clearings. It's much easier to make than the one just described, but I can't seem to make it work as well for me in warm weather. It will take pups very well, but many of the wise ones seem to be shy of it.

A stake should be used with bait hole sets if the ground is such that you can drive one in. And remember that it takes a long, strong stake to hold a coyote.

Dig a shallow "V" shaped place in the ground about eight inches wide at the small end and 24 inches long and about 24 inches wide at the big end. That hole is where your trap goes. Then dig a hole at about a 30 degree angle, about six inches in diameter, and about eight inches deep at the small end of the "V". That hole is where the bait goes. The pan of the trap should be placed about six inches from this hole.

Drive the stake down below the level of the ground in the "V" and place the trap on top of it. Cover the whole set with about a half inch of dirt. This should be tamped down the same as for the scent post set. The bait is put in the hole and covered lightly with dirt. And the scent is poured on the upper edge of the hole; seven or eight drops is plenty.

I like to have a lot of fresh dirt dug up on this one; it seems to interest the animals.

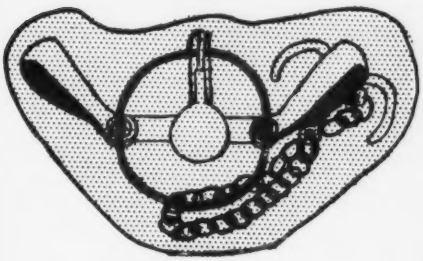
My observation indicates that coyotes seem to travel in groups from about two to five, sometimes more, although sometimes you run across a "loner". When one animal gets caught in a trap, the rest of the bunch are apt to mill around for a while and so it's a good idea to have three or four sets of both kinds close together—say about 75 to 100 feet apart. One time I caught three coyotes this way.

AFTER coyotes have been caught the rest of the bunch often takes off, so it seems a good idea to get your traps out on all the good locations at about the same time and try to make a clean sweep before they take off. The best results I've had have been during late summer and early fall.

I don't know of any way to avoid catching other animals in coyote sets. Foxes, 'coons, skunks and porcupines have gotten into my traps no matter how hard I've tried—foxes more than the others. The only way to minimize this is to place your traps as close as

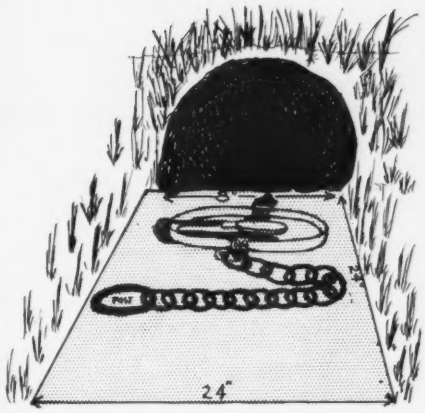
New York's coyotes or coyote-dog hybrids can best be controlled by trapping. Here, a State Trapper tells how you can help

BURY ✕ TRAP HERE



SCENT POST SET

DIRT HOLE SET



possible to coyote routes and crossings. Even so, you're going to catch foxes. They are attracted by anything that will attract a coyote. As to dogs, we do our trapping where there aren't any.

About scents: You should have several different kinds and keep changing them about every two weeks or so if you are trapping in one place for any length of time. Coyotes get wise to just one scent. I wouldn't want to say here what we use for scents and lures —I don't think even this magazine would publish it. But if anybody is seriously interested in trapping coyotes —and I mean seriously—they can write me in care of THE CONSERVATIONIST and I'll give some suggestions on how to make the stuff.

How do you find out where coyotes are? For my purposes, the best way is just to ask around, pick up rumors and then track down the rumors. Tracking down rumors isn't too tough; coyote droppings and tracks show up pretty clearly if there are any of these animals around. One of the best leads I ever had was from some men who worked on the D & H Railroad spur from North Creek to Tahawus. Most of these fellows were hunters and one of them was a trapper. They gave me some very good steers about where they'd seen coyotes along the railroad bed. A lead like that is a real help. I've also had some very good leads from Forest Rangers and lumberjacks and pulp cutters.

As a State Trapper, I've also had some help that an ordinary trapper couldn't expect; when I find an area that has a lot of coyote signs in it, the Department boys take me in a 'plane to look over this area so that I can spot clearings, woods roads and burns that will make good places to set traps. You can see more from a 'plane in 15 minutes than you can in two weeks on foot.

We've had coyotes in the Adirondacks for the last 15 years, but for some reason or other they don't seem to be increasing as they are in other parts of the Continent. As I said before, I think that to suit our purposes they can be controlled by trapping.

But a lot of people are worried about what coyotes will do to the deer population. They do kill deer at times, but I believe that the few coyotes we have would really have to go some to even dent our deer herd. That isn't just my idea—they've proved it in Michigan, where they really have coyotes and really have deer at the same time. And if anyone has been in the deer yards after a tough winter and has seen the dead deer lying around, they wouldn't feel so bitter about the few that the coyotes knock off. But some people seem to think that no one but a man is supposed to kill a deer, so I guess there's no use in arguing this point.

My experience indicates that the Adirondack coyote's diet is about the same as that of a fox. They eat a lot of vegetable matter such as berries, cherries and fruits, also insects when plentiful, including grasshoppers and June bugs. But snowshoe rabbits and mice seem to be their main staples when fruits and insects are not to be found. Some of the stomachs I've opened have had deer meat and hair in them along with other stuff, and a few of them had nothing but apples. It looks to me like coyotes eat whatever is handy and easy to get.

Some of the coyotes that have been caught were apparently part dog. I don't think this happens very often. Most of them in weight and appearance are the same as coyotes from Wyoming and Montana. I understand that one expert identified a bunch of skulls as coyotes, dog-coyote hybrids, and wild dog. How you can tell the difference between a wild dog skull and a tame dog skull beats me. But whatever they are, they're probably here to stay.

SOMEBODY asked me how many man hours it takes on the average to catch a coyote here in the Adirondacks. On my last trip I worked ten hours a day for 24 days and got eight coyotes. That makes it 30 hours per coyote.

A friend of mine brought to my attention the other day that what with the big bounties some of our Adirondack counties are paying, the coyote is our most valuable fur animal.

—ED. MAUNTON

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Then cover the pan with a piece of canvas or some other material and sprinkle dry sand all over the set. Then brush the whole set with a handful of twigs or goldenrod so that the ground around the set looks just the same as it did before you put the trap down. That means brushing away your tracks too, of course.

Last of all put the scent on the scent post, and you're ready for business. This set will catch the smart ones very nicely.

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A stake should be used with bait hole sets if the ground is such that you can drive one in. And remember that it takes a long, strong stake to hold a coyote.

Dig a shallow "V" shaped place in the ground about eight inches wide at the small end and 24 inches long and about 24 inches wide at the big end. That hole is where your trap goes. Then dig a hole at about a 30 degree angle, about six inches in diameter, and about eight inches deep at the small end of the "V". That hole is where the bait goes. The pan of the trap should be placed about six inches from this hole.

Drive the stake down below the level of the ground in the "V" and place the trap on top of it. Cover the whole set with about a half inch of dirt. This should be tamped down the same as for the scent post set. The bait is put in the hole and covered lightly with dirt. And the scent is poured on the upper edge of the hole; seven or eight drops is plenty.

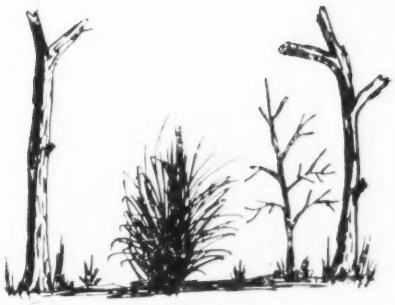
I like to have a lot of fresh dirt dug up on this one; it seems to interest the animals.

My observation indicates that coyotes seem to travel in groups from about two to five, sometimes more, although sometimes you run across a "loner". When one animal gets caught in a trap, the rest of the bunch are apt to mill around for a while and so it's a good idea to have three or four sets of both kinds close together—say about 75 to 100 feet apart. One time I caught three coyotes this way.

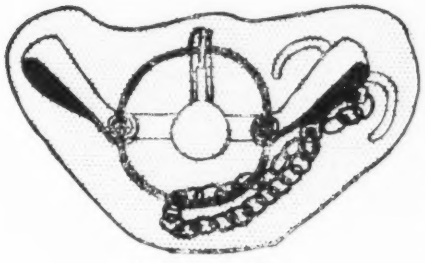
AFTER coyotes have been caught the rest of the bunch often takes off, so it seems a good idea to get your traps out on all the good locations at about the same time and try to make a clean sweep before they take off. The best results I've had have been during late summer and early fall.

I don't know of any way to avoid catching other animals in coyote sets. Foxes, 'coons, skunks and porcupines have gotten into my traps no matter how hard I've tried. Foxes more than the others. The only way to minimize this is to place your traps as close as

New York's coyotes or coyote-dog hybrids can best be controlled by trapping. Here, a State Trapper tells how you can help

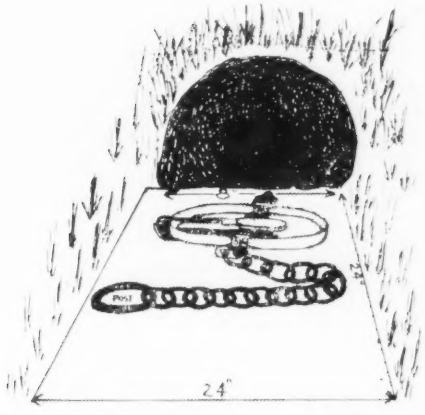


BURY ✕ TRAP HERE



SCENT POST SET

DIRT HOLE SET



possable to coyote routes and crossings. Even so, you're going to catch foxes. They are attracted by anything that will attract a coyote. As to dogs, we do our trapping where there aren't any.

About scents: You should have several different kinds and keep changing them about every two weeks or so if you are trapping in one place for any length of time. Coyotes get wise to just one scent. I wouldn't want to say here what we use for scents and lures.

I don't think even this magazine would publish it. But if anybody is seriously interested in trapping coyotes—and I mean seriously—they can write me in care of THE CONSERVATIONIST and I'll give some suggestions on how to make the stuff.

How do you find out where coyotes are? For my purposes, the best way is just to ask around, pick up rumors and then track down the rumors. Tracking down rumors isn't too tough; coyote droppings and tracks show up pretty clearly if there are any of these animals around. One of the best leads I ever had was from some men who worked on the D & H Railroad spur from North Creek to Tahawus. Most of these fellows were hunters and one of them was a trapper. They gave me some very good steers about where they'd seen coyotes along the railroad bed. A lead like that is a real help. I've also had some very good leads from Forest Rangers and lumberjacks and pulp cutters.

As a State Trapper, I've also had some help that an ordinary trapper couldn't expect; when I find an area that has a lot of coyote signs in it, the Department boys take me in a 'plane to look over this area so that I can spot clearings, woods roads and burns that will make good places to set traps. You can see more from a 'plane in 15 minutes than you can in two weeks on foot.

We've had coyotes in the Adirondacks for the last 15 years, but for some reason or other they don't seem to be increasing as they are in other parts of the Continent. As I said before, I think that to suit our purposes they can be controlled by trapping.

But a lot of people are worried about what coyotes will do to the deer population. They do kill deer at times, but I believe that the few coyotes we have would really have to go some to even dent our deer herd. That isn't just my idea—they've proved it in Michigan, where they really have coyotes and really have deer at the same time. And if anyone has been in the deer yards after a tough winter and has seen the dead deer lying around, they wouldn't feel so bitter about the few that the coyotes knock off. But some people seem to think that no one but a man is supposed to kill a deer, so I guess there's no use in arguing this point.

My experience indicates that the Adirondack coyote's diet is about the same as that of a fox. They eat a lot of vegetable matter such as berries, cherries and fruits, also insects when plentiful, including grasshoppers and June bugs. But snowshoe rabbits and mice seem to be their main staples when fruits and insects are not to be found. Some of the stomachs I've opened have had deer meat and hair in them along with other stuff, and a few of them had nothing but apples. It looks to me like coyotes eat whatever is handy and easy to get.

Some of the coyotes that have been caught were apparently part dog. I don't think this happens very often. Most of them in weight and appearance are the same as coyotes from Wyoming and Montana. I understand that one expert identified a bunch of skulls as coyotes, dog-coyote hybrids, and wild dog. How you can tell the difference between a wild dog skull and a tame dog skull beats me. But whatever they are, they're probably here to stay.

SOMEBODY asked me how many man hours it takes on the average to catch a coyote here in the Adirondacks. On my last trip I worked ten hours a day for 24 days and got eight coyotes. That makes it 30 hours per coyote.

A friend of mine brought to my attention the other day that what with the big bounties some of our Adirondack counties are paying, the coyote is our most valuable fur animal.

ED. MAXSTON

SALVAGE REPORT (6)

THE various activities of the Division of Lands and Forests under "Operation Blow-Down" fall into two general categories. First, the actual cleaning up of the large areas of heavy damage by contracts with industry and individual loggers. Second, the work in connection with the rehabilitation of fire and recreational facilities of the Department. As of October 31, the progress in the first category is as follows:

STATUS OF BLOW-DOWN CONTRACTS, OCTOBER 31, 1951.

	Under Contract	Being Advertised	Unsold	Total
No. of projects	105	3	47	155
Acreage	90,667	740	75,840	167,247
Cords	210,931	1,520	230,925	443,376
MBF	21,685	3,015	7,870	32,570
Estimated receipts	$890,790	$28,500	$813,465	$1,732,755

PRIVATE SALVAGE JOB

BEFORE: Presents a long-term fire hazard because tops are high off ground where they will dry out without decaying. Also, creates an impenetrable barrier to fire-fighters. To any but the most skilled lumberjacks, this would look like an impossible salvage job.

AFTER: This is a practical logger's job done with only one object: to salvage any wood that would still make a profit. Nevertheless, the area has now been made accessible for fire-fighters, and within three or four years normal decay will have eliminated the inflammable debris. The trees left standing aren't good for much except for the shade they cast (thus helping to keep the brush and litter from drying out) and for what seed they may drop (rather insignificant in spindly trees like this). Note that the leaning tree (left foreground, above) has straightened 10-15 degrees, apparently from being released from one of the adjoining trees in which it had become lodged. Also the stump in back of this tree has sprung back almost to normal position.

Note the horizontal butt portion in photo below (right—middle distance). This looks bad, but there would have been no point in removing it, since it is unmerchantable and does not increase fire hazard. It appears that leaning spruces in the background should have been taken, since they appear to be merchantable.

This isn't a "pretty" job, but it has accomplished three things: (1) it has salvaged what would otherwise have been a total loss, during a period of critical raw material needs; (2) it has reduced a terrific fire hazard to one of reasonable proportions; (3) it has cleared enough ground so that new tree seedlings can become established.

To make a "pretty" job out of this, say by cleaning up all the brush, tops, and unused logs, would have been economically prohibitive for private enterprise.

BELOW: Completed salvage job on the Forest Preserve, showing how rubbish is piled to make a neat-looking job and provide extra fire-protection along public routes of travel.

The 155 projects listed in the table, of which 105 were under contract as of October 31, 1951, include substantially all of the major areas of blow-down. In other words, except for an unknown number of small scattered areas which continue to come to light from time to time, they represent the salvage job to be done.

As of October 31, the actual receipts and accounts receivable for pulpwood and logs cut prior to that date amounted to $289,800. This sum represents the total contract consideration for some 73,000 cords of pulpwood, 3,600,000 board feet of softwood sawlogs and 1,370,000 board feet of hardwood sawlogs. During October these receipts aggregated $77,900.

The work of rehabilitation and clean-up of fire hazards along public highways and recreational trails and areas, which has been carried on under the various District Foresters by Department forces, is practically completed, except for the opening up of 58.6 miles of additional fire access trails, 10.3 acres of roadside hazard reduction and the fireproofing of 18.4 miles of recreational trails. The work accomplished to date by the Department (which does not include removal of 536,000 board feet and 271 cords from eight public campsites) is summarized as follows:

DEPARTMENT WORK COMPLETED

Opening truck trails	85.9 miles
Reconstruction, telephone lines	183.8 miles
Reopening trails to towers	138.7 miles
Roadside hazard reduction	129.7 acres
Additional road frontage	17.1 miles
Opening recreational trails	339.4 miles
Opening fire access trails	36.7 miles
Fireproofing recreational trails	292.4 miles

The above figures indicate that the "housekeeping" work of the Department in connection with the blow-down is now substantially completed, and that in the near future the only remaining expense to the State will consist of inspection and supervision of the contract operations.

—A. S. Hopkins,
Director, Div. Lands and Forests

ever see a

PINK-TAILED rabbit?

A NEW excuse for missing a shot at that most popular of game targets, the cottontail rabbit, has been provided for hunters of the Three Rivers Game Management Area near Baldwinsville. The added distraction exists because a small part of the resident rabbit population is this year wearing a colored tail piece, designed by the Conservation Department, in place of the familiar white patch which gave the cottontail its name.

There is no intent to imply, by this introduction, that coloring rabbits' tails was an inspiration designed to save the rabbit population by startling hunters into missing. The color provides a means to an end. By means of color identification an opportunity for making a population census is provided. Censuses are necessary to permit an evaluation of various habitat management measures, designed to increase rabbit abundance, which are being tested.

But let's put the story in its proper sequence.

Unquestionably the cottontail, because it is most abundant, is our most hunted game species. Unfortunately it is subject to severe fluctuations in numbers, and, when at a low point, represents the greatest loss in terms of hunter potential. Almost from the time these fluctuations were first observed game technicians and sportsmen have tried to find practical ways to combat them, all to no avail. The rapidly increasing army of hunters, better firearms, and better transportation facilities further contribute to the problems of maintaining rabbit populations sizeable enough to meet demand.

In recent years emphasis in cottontail research and management has shifted towards improvement of habitat as the elemental basis for increased rabbit abundance. This shift has not come about accidentally. It is based on sound reasoning growing from the recognition that rabbits, like other game species, are a product of the land, and that production limits are reflected in the quality of that land's characteristics. This reasoning has evolved from information gathered over a long period of time and from a great number of sources. It stems from life history studies and from experience gained in the failure of all other attempted measures to provide a practical means of increasing abundance. Encouragement that the reasoning is sound is seen in the reports from Pennsylvania of preliminary favorable results of habitat management measures specifically tailored to the requirements of cottontail rabbits.

Through life history studies a great many of the factors which favor cottontail existence are known. A great many of their preferences and tolerances in food and cover have been defined. Likewise, the over-all importance of the relationship between food and cover possibilities is recognized.

If the proper balance of year around food and cover requirements is available, a cottontail can exist on a very small unit of land. The greater the number of such small units the higher is the carrying capacity of an area for cottontails. By balance is meant not only the relative amounts of each requirement, but also the way in which those requirements are distributed.

For example, sumac bark is an excellent winter food, while a young pine plantation is excellent winter escape cover. If both exist, but are separated by an open area, the situation is very often a death trap for rabbits. For a cottontail's salvation lies in its ability to dodge around, through, and under any and all types of sheltering cover. When flushed, a rabbit's burst of speed looks deceptively fast. It is nevertheless true that a fox or dog can easily outrun it in the open. If, daily, it has to cross a wide opening to get from cover to food and back again, it is very vulnerable to predation, to say nothing of the weather. But adjoin the pine plantation and sumac supply, and an ideal situation exists for winter survival of rabbits, with no need for exposure to either predators or inclement weather.

The background for blueprinting a preferred environment for cottontails, therefore, exists. There still remains, however, the major problem of converting this blueprint into practical accomplishments on the land. A beginning has already been made in developing units of cover for rabbits by the planting and fencing activities of P.-R. Project 48-D. Still needed are practical, long lasting measures for holding cover characteristics and feeding possibilities

at the stage where preferred conditions for cottontails are provided.

It is in search of such practical management measures that a research-management team is at work altering the cover on a small portion of the Three Rivers Area. (Companion studies are in progress near Schenectady on an area closed to hunting.) Particular emphasis is on operations suited for use on private lands wherein lie most of our rabbit coverts, and which can be carried on by local groups.

Most of the cover management measures being employed were described and illustrated in the June-July 1951 CONSERVATIONIST under the title "Housing Project for Cottontails" and so will not be repeated in this article.

A true test of the effectiveness of habitat management is whether or not it results in more rabbits than a similar unit of cover left to develop in the natural chain of succession. Therefore, the study area was composed of two widely separated sections. Both sections were similar in original cover make-up. The cover characteristics of one are undergoing a major overhauling, while the other section is left to develop naturally. Censuses are made periodically for comparison of populations.

Trapping furnishes the basic source of census information. Live-trap stations have been established at 100-yard intervals on both sections. The trap used is elongated and box shaped, with a single open end. When a rabbit enters, lured by a bait, the hinged door swings closed and it is trapped. Traps are checked every day.

At its first capture each rabbit loses its anonymous status. Its ear is decorated with a numbered light-weight metal ear tag. It is examined from stem to stern and in the process its physical characteristics of sex, weight, ear and hind foot lengths, breeding condition, and other pertinent data are recorded. As a final act before releasing it, dye is applied to the rabbit's tail with a cotton swab.

A different color dye is used on each section so that in any rabbit observations off the area, movements can be traced. The two dyes presently in use are saturated alcohol solutions of Rhodamine B extra (red) and picric acid (yellow). Alcohol is used as the solvent for quick penetration of the hairs' natural resistance to wetting.

The total rabbit population is not immediately determined by the number of rabbits trapped, for complete trap success is extremely rare. Therefore, allowances must be made for those rabbits that elude capture. Therein lies a principal value of the numbered ear tag and of the dyes. By so marking a certain number of the rabbits existing on an area, a known figure is introduced which, in a second survey, allows calculation of total population.

To illustrate the method, assume that, of an unknown population, 50 rabbits are captured, marked, and released. Then, in a follow-up survey 20 marked and 20 unmarked rabbits are identified. If no other factor has distorted the picture, it is clearly indicated that half of the rabbits on the area are marked, as shown by the equal numbers of marked and unmarked rabbits identified. Since, then, there are equal numbers of each, knowing that 50 were originally marked, another 50 unmarked rabbits must have escaped capture. Therefore the total population should equal 100 rabbits.

As indicated, a second or follow-up survey is made to determine the existing proportion of marked to unmarked rabbits. Different survey methods can be used, and four are in use in the present study. Hunter reports, a second period of box trap recoveries, sight surveys, and ferret surveys are each used as conditions warrant. All are dependent on the original box trap operation for marking a proportion of the population.

In all but the sight survey the rabbits are recovered and individuals can be identified by their tag numbers. In addition to their value in an appraisal of the habitat improvement work, such recoveries contribute to knowledge of the average cottontail rabbit's life span, breeding history, normal daily and seasonal movements, yearly turn-over, and other important data which must be considered in setting hunting laws to assure a wise use of this game resource.

It is in the sight surveys that the dyes are most useful, by furnishing the only means of identifying previously handled animals. By strip walking the area to flush as many rabbits as possible, the proportion of marked to unmarked rabbits can be determined simply by observation.

The period of effective duration of the type dyes tested on rabbits for field identification seems to be about 60 days. But in some instances under ideal conditions they have been observed to persist as much as six months.

This fall 95 rabbits were dyed on the Three Rivers Area in the first pre-hunting season census. Although the study is as yet in its infancy and much of the cover management work remains to be done, the population comparisons are as important now as at a later date. Even though the dyes have as yet contributed nothing more to hunting than to provide hunters with a colorful tale, it is hoped that they will serve as a reminder to sportsmen to report all recoveries of marked rabbits. And, if you really were startled into missing, our apologies.

—JOSEPH DELL,
Game Research Investigator

HIBERNATION

By W. J. HAMILTON, Jr., Department of Conservation, Cornell University

A SHORT time ago the fields and woods of early fall abounded with life. Chipmunks scurried about, their swollen cheek pouches bulging with the harvest, while every field appeared to have its plump woodchuck. The warm evenings produced countless bats, who in agile flight took toll of the myriad insects. Everywhere there were signs of life.

But now the near silent woods give little evidence of the once populous hordes. A frisky squirrel searching for the long buried food, or a troupe of sprightly chickadees moving slowly through the alders represent the visible life at hand. Fresh tracks, their impressions as clear as the written page, tell us that rabbits, grouse, deer and other foragers are seeking food in the snow, but to the inexperienced observer, life is notable mainly for its comparative scarcity.

This apparent lack of animal life in the colder months can usually be attributed to one of two causes, migration or hibernation. Animals which can flee the hostile winter and the resultant lack of suitable food migrate to more agreeable climes. Some bats and most of our common birds leave the northern states regularly in the late summer and fall.

But other native species avoid the rigorous period by going into the profound "sleep" of hibernation. This phenomenon involves an inactive state in which the bodily processes are greatly retarded, metabolism is lowered, resulting in body temperatures dropping to a point only a few degrees higher than that of the surroundings. Dormancy is quite another matter. Here the animal is lethargic, drowsy and inactive over a variable period, often weeks or months at a time, but it is not hibernating.

Consider the black bear. All through the late summer and fall, the big fellow has gorged itself on fruits and berries, acorns and beechnuts, gathering beneath its shaggy hide a substantial layer of fat, a source of sustenance that will maintain it during the long fast of winter and spring. The old man may rouse himself at infrequent intervals, to roam the barren woods, only to retire again after his travels. The lady, less prone to travel at this season, must likewise maintain a high temperature in winter quarters, for the diminutive cubs, born in February scarcely larger than a rat, rely on her for a source of nourishment well into the spring. Skunks and raccoons also maintain a high temperature throughout the winter, and while they are often inactive for weeks at a time, they cannot be considered true hibernators.

There are relatively few true hibernators among New York mammals.

Best known of these is the groundhog. Family duties are usually over by late June, when the young scatter to make new homes and gorge themselves on the succulent grasses. By late summer the 'chuck's weight has doubled, and a ten or eleven-pound individual is a commonplace. As the first frosts of late September or early October blacken the vegetation, the groundhog waddles to the nearby woods, clears out some long unused burrow and remodels the underground chamber that will serve as his winter bed for nearly five months. Curled in a ball, the black nose resting between the hind limbs and the sable forefeet clenched into tight fists, the provident fellow dozes off into the long sleep.

Now comes the great change. With increasing torpidity, all bodily functions decrease. While the summer temperature of the woodchuck approximates that of man, a drop of 40 degrees is not uncommon within a week after entrance into winter quarters. One must look long and sharp to see the faint indication of respiration. Circulation is retarded; at this season an amputated limb will ooze but a few drops of blood. If one removes a 'chuck from the hibernating den in mid-winter, it appears all but lifeless. To be sure, a week of mild January weather will rouse a few of these big rodents, but normally they are not up and about until mid-February or early March. Why the woodchuck retreats to his winter quarters in a land of plenty and comes forth in a world all but barren of food is difficult to understand.

Every grouse hunter has heard the clucking note of the chipmunk in the leafless November woods. Unlike his associates, the red and gray squirrels, the striper passes weeks on end curled into a stiff ball of fur. Perhaps his provident nature enables the chipmunk to arouse from the winter sleep during the coldest weather, for he has put aside a substantial store of food. This is the most active of the true hibernators. I've often seen their tracks in the snow during near zero January weather.

The jumping mouse is another which takes its winter sleep seriously. This little fellow of the hay fields, with tremendous hind feet and a tail which almost doubles the length of the head and body, fares well on the seeds, berries, grasses and soft bodied insects during the warm season. Nature's banquet table results in a substantial layer of fat. Other mice are active in the coldest weather, but the cool nights of early October warn the little jumper that it had best retire to the earth. Safely curled in a tight ball, its long tail coiled like a watch spring or wrapped over the body, the creature slumbers away more than half the year.

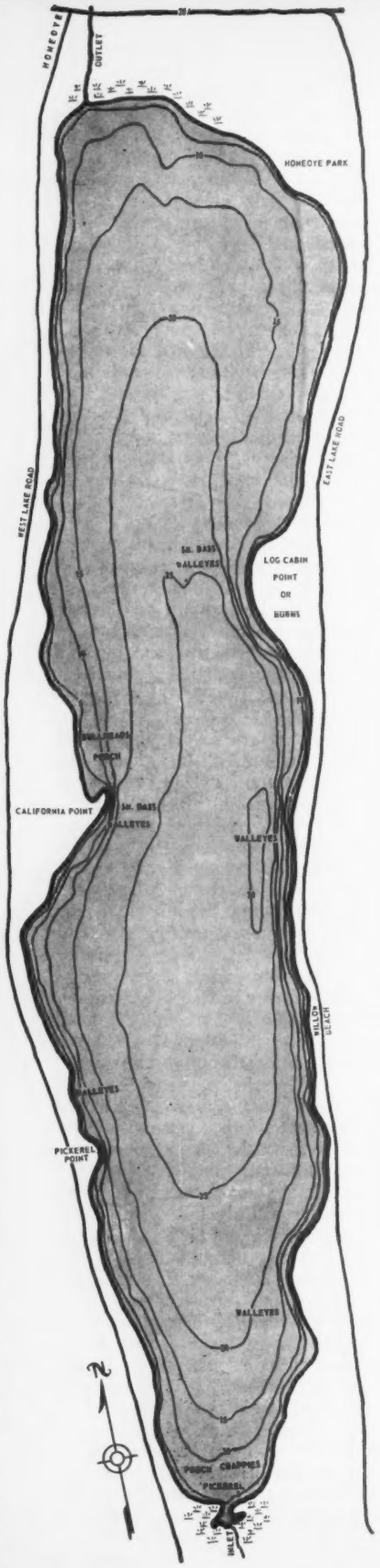
Our native bats are all insect eaters. They must either move to milder areas where winter food is available or seek some sanctuary that will provide a safe haven during the bitter weather of our northern winters. Those that do not seek a sunnier clime congregate in vast numbers in the caves which dot the State, or seek abandoned mine shafts wherever these may occur. In such retreats the temperatures vary but a few degrees over the year. Reasonably mild and humid throughout the coldest months, these sanctuaries provide ideal winter quarters. Hanging head downward, hundreds of bats may be found massed on the ceilings or in the rocky crevasses. A strong beam of light from the flashlight may awaken them to activity, but to all intents they are oblivious to the outside world.

The most pronounced change that occurs during the long quiescent period is a loss in weight. The reservoir of stored fat has been drawn on through the winter, and the 'chuck, bat, or jumping mouse emerges from its long sleep weighing approximately half what it did when it entered winter quarters in the fall.

Temperature may be one of the main governing factors that induces the animal to resume its activities; food is often at a premium at this season. Thus the first woodchucks to appear in late winter appear in the land of snow and ice, and must rely on the remaining fat for sustenance during the several weeks before the first greens are available. 'Chucks, at this early season, will chew bark from the wild cherry hedgerows. The mating urge presumably draws many from their burrows. Even those who become only dormant, as the skunk and raccoon, travel the still frozen woods to find a mate.

SO far we have alluded only to the mammals, for they are best known. But snakes, turtles, toads, frogs, insects and many others also pass the winter in a comatose condition. Some snakes will utilize a spring, burying themselves in the mud and detritus of the bottom. Their companions are often lethargic frogs. Or they may utilize a large ant hill or a drain tile. Toads seek the sanctuary of the ground, burying backward into the loose earth. Pussy willows will have burst their sheaths before the turtles rise from the muddy bottom, to bask in the April sun.

All the causes which induce hibernation are by no means known. But it would be fine if man could emulate these lesser creatures, drowsing away the zero weather of our New York winters.



HONEOYE LAKE

PHYSICAL CHARACTERISTICS:

Location: southwestern Ontario county
Area: 1,670 acres
Elevation: 803 feet above sea level
Maximum depth: 30 feet—about 80% of lake is less than 25 feet deep
Length: 4.5 miles
Maximum width: 0.8 miles
Plant life: rooted aquatic plants common to abundant over most of the shallow water zone to a depth of about 13 feet. Extensive beds of wild celery and pond weeds. Watermilfoil, naiad, water weed, mud plantain and stonewort—common.
Bottom: predominantly mud with scattered areas of sand, gravel or rubble in shallow water zone.

FISH AND FISHING:

A shallow, productive warm water lake, the principal game fishing being for walleyes, pickerel and largemouth bass.

Walleyes: best grounds south of Log Cabin Point
Pickerel: most abundant at south end
Largemouth bass: generally distributed
Smallmouth bass: distribution spotty; gravel-rubble areas
Northern pike: uncommon — caught only occasionally
Muskalonge: (?); stocked in 1924-25-26
Yellow perch: distribution general — good spring-of-the-year fishing near inlet
Calico bass: good fishing near inlet; early spring
Rock bass: distribution spotty
Common sunfish: distribution general
Bluegill sunfish: uncommon
Bullheads: distribution general
Suckers: widely distributed
Minnows: nine species known to be present
Log perch and Johnny darter: common
Killifish: common in shallow water
Brook silverside, "skipjack": common

HUNTING:

Ducks, mainly blacks, teal and wood-duck.
Good deer country on wooded hillsides near lake.
Grouse common.

MISCELLANEOUS:

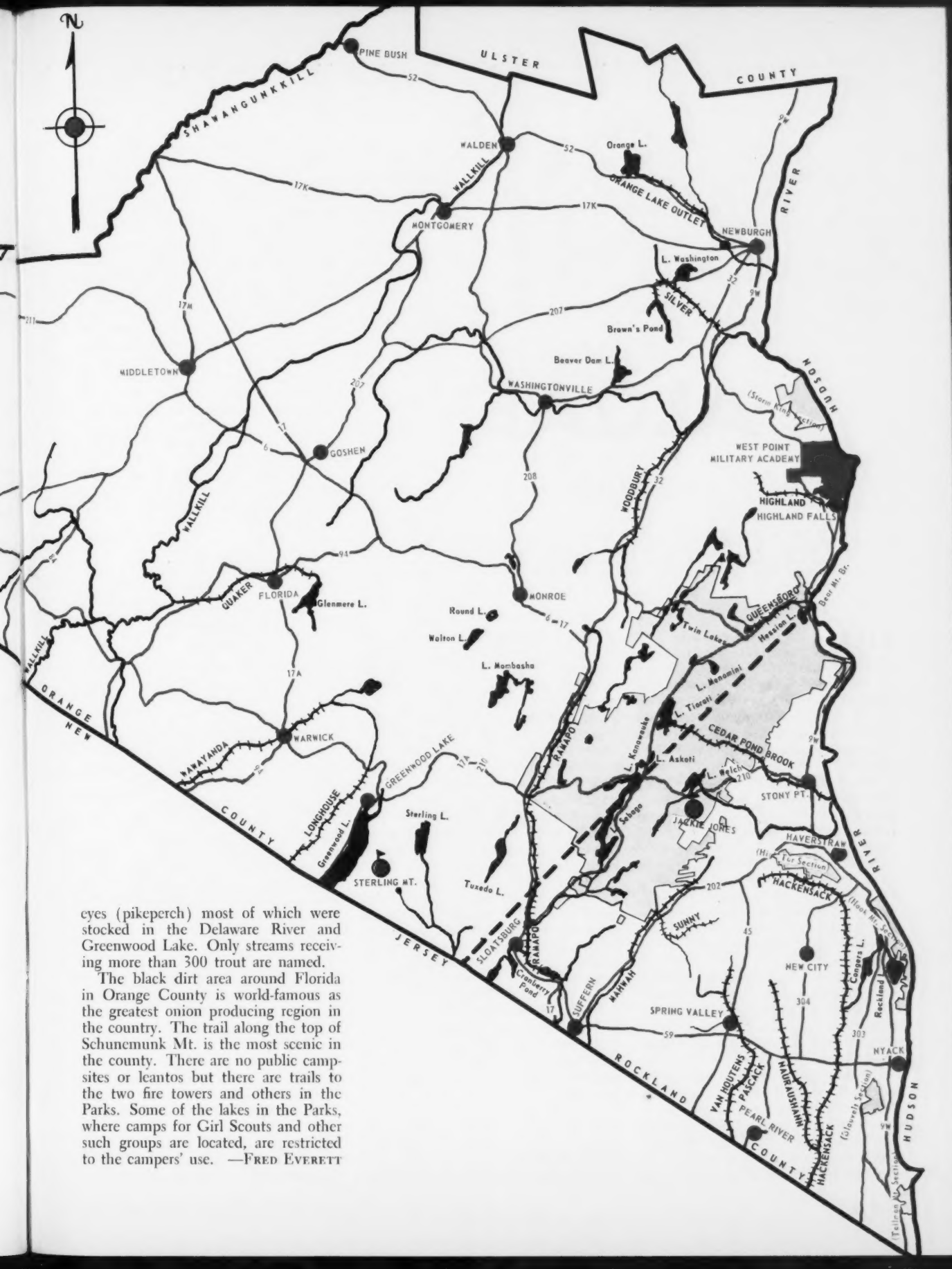
Rock ledges on southeast side of lake inhabited by the timber rattlesnake.
This was one of the collecting grounds of the late Pete Gruber—"Rattlesnake Pete" of Rochester.
Cabins and boat liveries available.

—U. B. STONE

Counties of Orange and Rockland

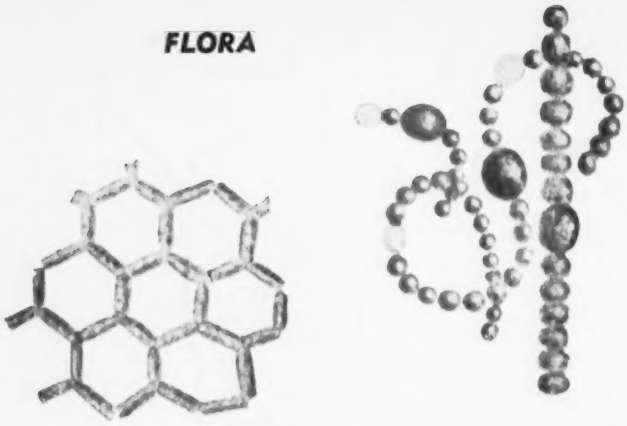
ORANGE and Rockland counties form the gateway to the Catskill region from the Metropolitan District. Although on New York City's doorstep, both counties offer opportunities to enjoy a great variety of summer and winter sports. The boundary line between the counties bisects the 39,168-acre Harriman-Bear Mt. State Park. The only State-owned land is in this and other Parks located along the Hudson River. In addition, there is the Military Reservation at West Point.

Both counties offer excellent fishing and good hunting (no hunting permitted in the Parks). In 1950 more than 3½ million fish were stocked of which about 33,000 were native, brown and rainbow trout and 92,000 were smallmouth bass. The rest were wall-



eyes (pikeperch) most of which were stocked in the Delaware River and Greenwood Lake. Only streams receiving more than 300 trout are named.

The black dirt area around Florida in Orange County is world-famous as the greatest onion producing region in the country. The trail along the top of Schunemunk Mt. is the most scenic in the county. There are no public campsites or leantos but there are trails to the two fire towers and others in the Parks. Some of the lakes in the Parks, where camps for Girl Scouts and other such groups are located, are restricted to the campers' use. —Fred Everett



ALGAE

The illustrations show what some common colonial and one-celled forms of these plants look like under the microscope. They include diatoms, blue-green and green algae. Above are two colonial types; the net-like arrangement has several cells around each mesh. All illustrations from Whipple, G. C., *Microscopy of Drinking Water*, 1899, revised 1927. Magnification X250 to X500.

"WE have a 35-acre lake . . . Is there any way that the weed and algae growth can be controlled without destroying the fish and duck life? . . . Please send me any bulletin or information you have pertaining to weed and algae control by the use of copper sulphate or any other method."

This portion of a letter (one of many of its type received by the Department) indicates that some people are interested in algae. Actually, interest in this type of plant should be much more widespread and should be accompanied by a more respectful, even admiring attitude, Algae are extremely versatile, useful plants; without them, the plant and animal communities with which they are associated would be in sad condition indeed.

Then too, lacking algae we could have no algologists and so would lack a word very useful for gargling excercise. Algologists, though rare, are interesting because they know a great deal about algae.

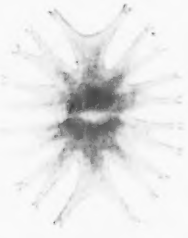
Just what plants to include among the algae and how to classify them generally have been bothersome questions to botanists and limnologists (including algologists) for a long time. Actually, the term algae is not now included in the Linnean system of plant classification but includes from five to nine classes of plants, depending upon the authority. Smith, in his authorative "Fresh-water Algae of the United States," characterizes algae as "the series of pigmented protista (one-celled organisms) in which definite plantlike representatives have been evolved." This evolution has produced an astonishing variety of plants including more than 25,000 species. Even the familiar Stoneworts (*Chara* and *Nitella*) with their complex cell structures and resemblance to the higher plants in appearance are usually grouped with the algae.

But in general, algae occur as single cells or as aggregations (colonies) of single cells. A colonial cell, if separated from the rest of the colony is capable of performing all the life functions. In that sense, most algae are simple. But in many other respects they are not at all simple, as will appear.

In the water, where most of them live, algae occupy a position in the biotic community somewhat similar to grass and weeds on land. Viewing the situation from the animal angle, the important function of plants is the transformation of raw material (mineral salts and carbon dioxide plus energy supplied by sunlight) into foods usable by animals (carbohydrates, fats and proteins). Recently man has found out how to copy in the laboratory some of the very complicated processes involved in such production, but many have not yet been mastered, so animals including man are still dependent, ultimately, upon plants for food.

Algae are similar to other chlorophyll-bearing plants with regard to method of food production except that, generally, a single algal cell carries out all the essential functions involved—within itself. Add to this the facts that algae are found almost everywhere in water and that their reproductive processes are amazingly efficient under favorable conditions—and the predicament fishes and other aquatic animals would be in without algae is immediately clear. Leaves of the higher (rooted) plants are consumed by some aquatic animals, but most of them depend directly or indirectly upon algae, at least in some stage of their life history, and consequently could not subsist without this type of plant.

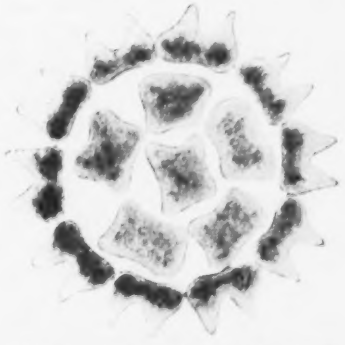
Algae are among the most cosmopolitan of organisms, an evidence of their surprisingly efficient ways of getting around. They are dispersed in many ways but probably mainly by birds, by winds and of course by streams. Newly created ponds, even the popular type of farm fish pond known as "sky" pond which obtains water only from surface drainage, normally become innoculated with cultures of algae almost as soon as they fill with water.



The basic importance of algae in the food chain of fish is recognized in the increasingly well-known technique of fertilizing farm fish ponds. Since even new ponds apparently contain cultures of the requisite species of algae, the fish production problem hinges primarily upon some method of encouraging the algae to produce abundantly. Given a heavy crop of this basic forage, the smaller forms of animal life upon which fish feed will become abundant and fish yields, in turn, will be abundant. Fertilization of water for this purpose simply consists of furnishing basic nutrients needed by these plants or, more commonly, supplementing natural nutritive materials which may be deficient in the situation.

When pond fertilization is successful, it not only performs the function of increasing fish-food production but may also be an aid in balancing fish populations favorably. A dense crop of algae shuts out sunlight necessary for growth of rooted plants, thus limiting their development to very shallow water or preventing it entirely. Species like bluegill sunfish use rooted plants for shelter and often, in weedy situations, become overcrowded to the extent of preventing good growth of themselves and associated fish species. When used with largemouth bass in a fertilized pond, bluegills may be kept under control (in good balance) because a condition of abundant algae retards development of their natural shelter: with no weeds present, the bass grow well on a diet of bluegills, in turn thining the bluegills so they will grow well too.

Along with such ordinary virtues, algae possess interesting (if sometimes apparently uncalled for) attributes of versatility, a few of which should be mentioned. While most algae live in water and all need moisture, their selections of homes is varied. Some kinds are found in soil, on rocks, on the hair of animals, some in hot springs, and several species even in snow. They are vari-colored, different kinds being green, blue-green, yellow-green, brown and red. They or their remains, when abundant, lend color to their surroundings: some of the colors surrounding hot springs are due to algae and everyone is familiar with the usually green or blue-green color, often unwelcome, of lakes at the time of an algal bloom or pulse, when the lakes are "working." Some algae in hard water lakes are able to produce almost pure lime, sometimes



in the form of rounded pebbles. When abundantly produced over long periods such lime deposits result in marl beds in quantities practical for mining.

Perhaps most spectacular are the algae found only in association with certain animals. The best known instance of this probably is the occurrence of algae upon the hair of the South American three-toed sloth. Curiously, the greenish color this lends to the animal may be of protective value, as this sloth spends most of its time against a green, tree-top background.

Certain species of algae occur upon various aquatic animals including such varied types as turtles and microscopic crustaceans. In some instances the habits of such algae may benefit both themselves and the host animals; in other cases they are parasitic, the alga actually being nourished by the host animal.

The common forms of fresh-water algae, including the free-floating and bottom-dwelling types (some of them scum-forming) are of more practical concern to us. This sometimes seems especially true when their efforts are obnoxious or annoying. This they can most certainly be, for some species of algae, unless strictly controlled, lend a bad taste or odor to drinking water and these or other forms, decomposing in a lake after a heavy bloom, may really smell. Blooms are also said to cause poor fishing, an opinion supported by much fishing experience and based (among other things) upon the apparently sound logic that visability is reduced at such times—often drastically so.

The cause of lakes or ponds "working" (producing these blooms or pulses) is one of those simple things for which the reasons are often obscure. Lakes usually have two principal blooming periods: spring and early fall. They are brought on by a combination of conditions favorable for algal growth and reproduction, but different species are favored by different conditions, so blooms occurring at different seasons generally are dominated by a series of different kinds of algae.

Among various chemicals more or less toxic to algae, copper sulphate is most often used for control purposes because it is readily available, reasonable in cost and relatively easy and safe to use. Laboratory work has demonstrated that some species of algae can be killed by concentrations of copper sulphate not lethal to fish. Various authorities have cited their own and others' favorable experiences with treating lakes and reservoirs by this method, indicating that it is generally successful for control purposes. Yet several considerations suggest that the tendency is to be overoptomistic as to its effectiveness.

Variability of effects of copper sulphate due to different tolerances of different species and forms of algae and due also to variability of natural environments is recognized. For example, a standard table showing amounts of copper sulphate required to kill different species of algae cites a range of tolerance from 0.12 to 10.00 parts per million. Further, toxicity of the chemical is known to vary with temperature, hardness of water, amount of organic matter, amount of carbon dioxide as well as with the species and forms of algae present.

Then too, when large quantities of algae are killed off suddenly, their decomposition may result in a fish kill, through oxygen depletion, even if the copper is not toxic. Incidentally, this same concentration and decay of dead algae may cause a worse stench than would have occurred if the bloom had

been left to run its natural course, with the usual, more gradual mortality.

When these difficulties and uncertainties are considered, along with the basic values of algal vegetation in the aquatic food chain, it appears that active control measures should be considered carefully and usually, in fishing waters, should be attempted only as a last resort. When attempted, the objective of control should be to prevent blooms rather than to destory the enormous concentrations of algae present after the bloom has developed.

Recent inquiries by several research agencies into the potentially very great productivity of algae indicate future values of promising importance directly to man. Under optimum conditions (admittedly difficult to maintain on a large scale) it has been estimated that certain algae may produce roughly 60 times as much protein as the soybean, one of the present top producers. Thus productivity, the attribute of algae often responsible for objectionable conditions, may in the future prove to be a boon to humanity by allowing expansion of food resources and other essential raw materials.

—C. W. Greene,
Senior Aquatic Biologist

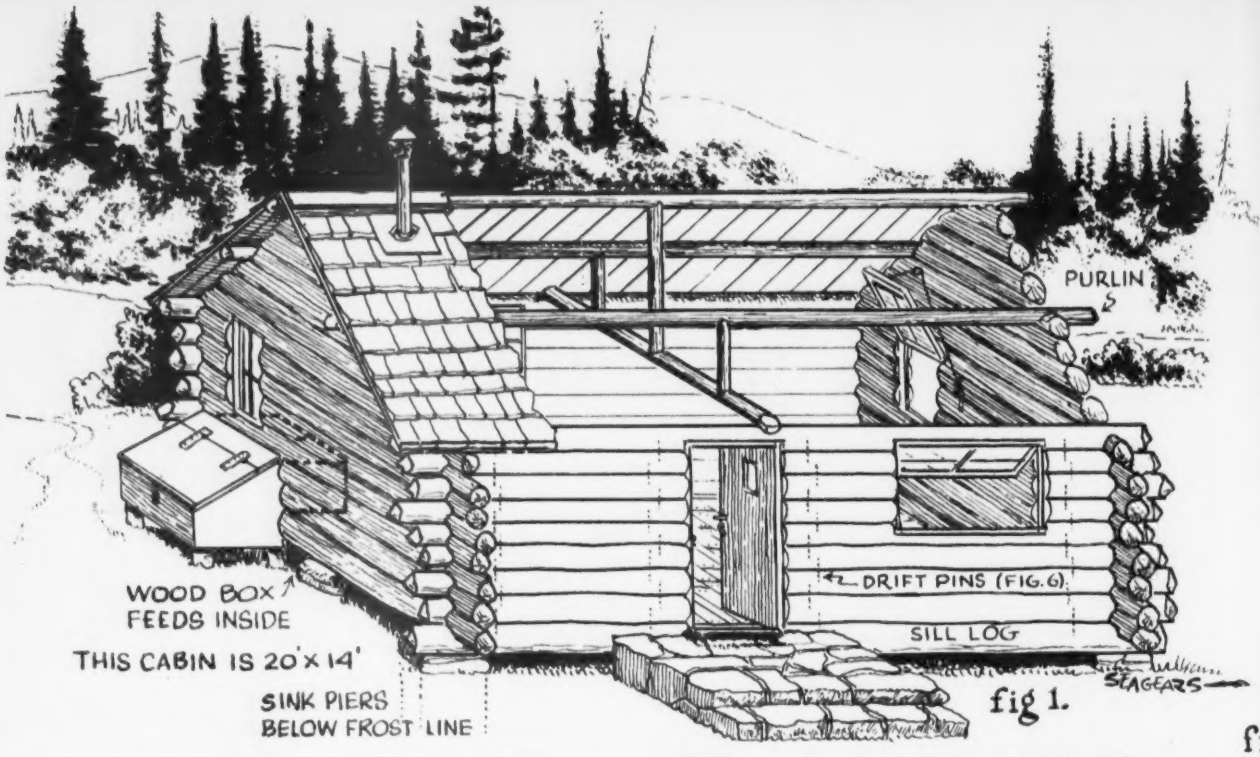


fig 1.

LOG CABIN

GIRLS play with doll houses. Boys build huts. We never get over it. A log cabin is tucked away somewhere in the escapist dreams of every adult. It may be a symbol for something else. But it's there. Winter is a fine time to get ready to build one.

Get uniform, peeled, straight, smooth logs 10" thick with little taper and about 5' longer than inside cabin dimension for projection beyond corners. Also get 8" poles for ridge, purlins, floor joists. Spruce, pine, cedar, balsam best. Larch, hemlock, some hardwoods used. Cut in winter if possible and season on skids until summer. Peel harder but crack less. For sources and probable costs, 'phone District Forester or Ranger. Cabins normally are built of whole full-length logs with openings cut out later but your limitations may require some short logs to be fitted against door and window framing when first raised. See Fig. 1.

First sink cemented piers or cedar posts 3½ feet deep at 4 corners so that the 2 sills (side logs) resting on them will clear ground to prevent rot. Roll on the 2 sills, make plumb level and parallel 14' inside. Shim up the centers with rocks to prevent sag. Put on 2 end logs 20' apart. Square and dog exactly in place so they won't roll. Now comes interesting job of making first of round-notch corners for fine tight fit. To do this see Fig. 3.

After scribing one side, mark log's opposite side and other end. Now turn it over and chop notches roughly (of course, your axe is razor-sharp). Chip down close to mark and finish off with gouge chisel exactly on mark, not a hair beyond by gosh. Cut notches from heart outward so log's weight will rest on marked edges. Turn over and spike down (Fig. 4). Repeat with other end log and your first round or tier is complete.

Next set in place 8" cross joints, which support floor, by notching them into sill logs about 2' apart (Fig. 5). Shim up centers with rocks or long cross pole.

Now go on up with rounds, keeping corners level by alternating butts and small ends of logs and, if necessary, by changing notch depth. Also keep inside face of logs vertically plumb. Pin logs together with 10" spikes (Fig. 6) staggered about 2' in from corners (Fig. 1) and elsewhere as needed.

Door and window openings can be cut before the cap log is placed—or upper log each side of opening can be sawed far enough through to permit insertion later of cross cut saw blade with handle removed. When cap or overhead log is placed, chisel out space over door and windows to allow for settling.

Finish tiers about 7' up with the two longest logs (front and back) on top. Tie them across in middle with cross pole (Fig. 1) beveled to fit roof slope. Nail duplicate inverted V frames temporarily to end corners as guide to chopping of gable logs to fit roof slope. Go on up with pinned gable logs notched where purlins go through. When ridge pole has been hoisted in place and spiked, brace it and purlins with 6" posts resting on the cross pole.

Roofs can be made many ways but this simple one has rough boards nailed up and down across purlins and resting on side logs. It is covered with tar paper (paint it woods green) or composition squares. Split cedar shakes are far more appropriate but may be unavailable.

This cabin has a wood stove for more efficient heating, drying, cooking and less wood consumption. Run pipe up through hole in roof boards over which is fitted metal insulating sheet lapped under roofing at upper edge. Use rain cap to reduce pipe rust.

For flooring, first put down sub-flooring of shiplap or sheathing, then a fin-

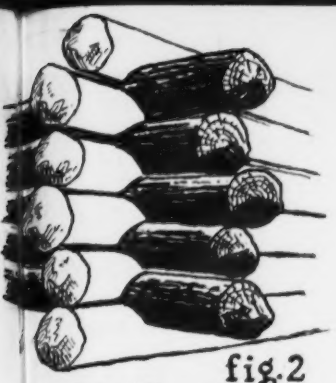
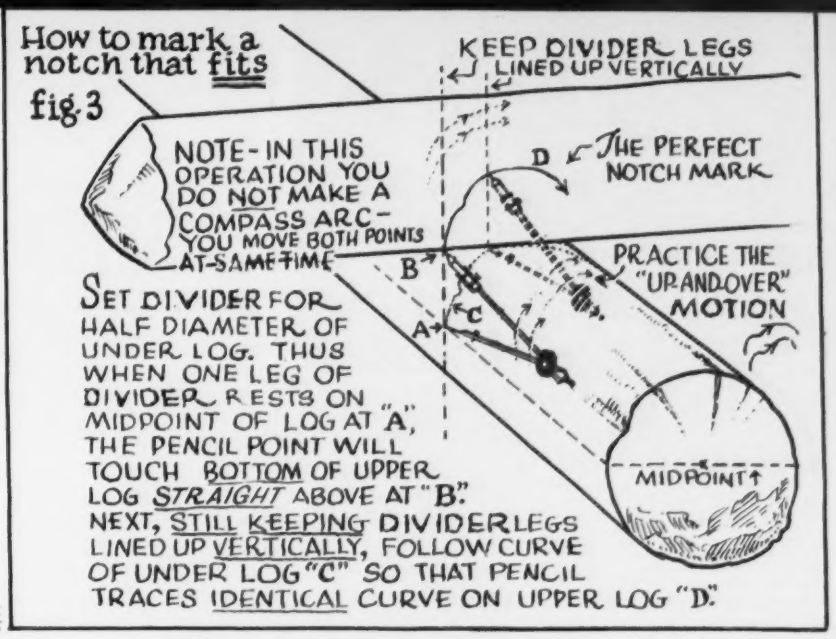
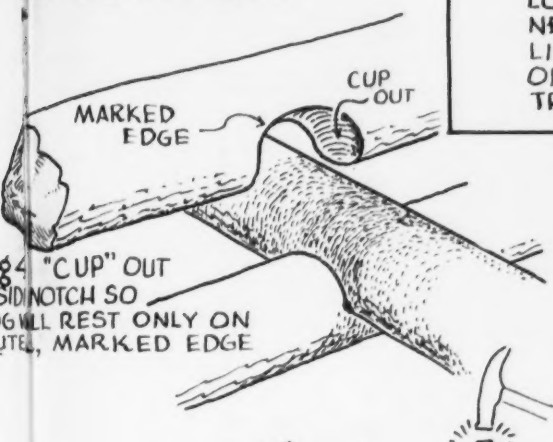


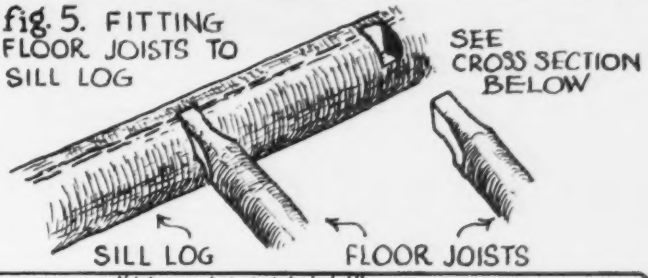
fig.2

Round saddle notch corner--*the real McCoy.*

THE BOTTOM HALF *ONLY* OF EACH LOG IS NOTCHED


How to mark a notch that fits
fig.3
KEEP DIVIDER LEGS LINED UP VERTICALLY
NOTE-IN THIS OPERATION YOU DO NOT MAKE A COMPASS ARC- YOU MOVE BOTH POINTS AT-SAME-TIME
D THE PERFECT NOTCH MARK
PRACTICE THE "UP-AND-OVER" MOTION
B
C
A
SET DIVIDER FOR HALF DIAMETER OF UNDER LOG. THUS WHEN ONE LEG OF DIVIDER RESTS ON MIDPOINT OF LOG AT "A", THE PENCIL POINT WILL TOUCH BOTTOM OF UPPER LOG STRAIGHT ABOVE AT "B".
NEXT, STILL KEEPING DIVIDER LEGS LINED UP VERTICALLY, FOLLOW CURVE OF UNDER LOG "C" SO THAT PENCIL TRACES IDENTICAL CURVE ON UPPER LOG "D".
MIDPOINT





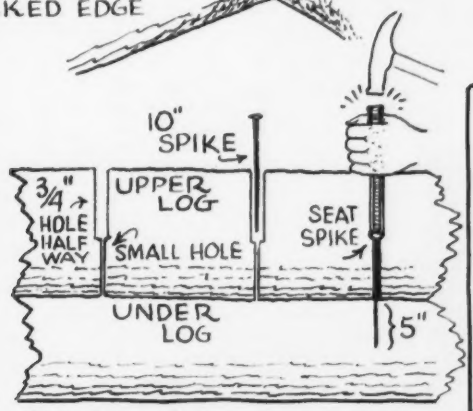
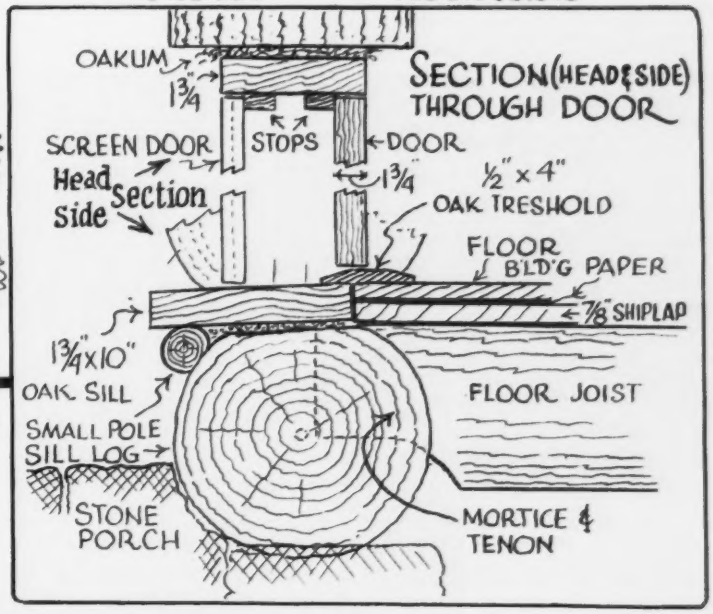
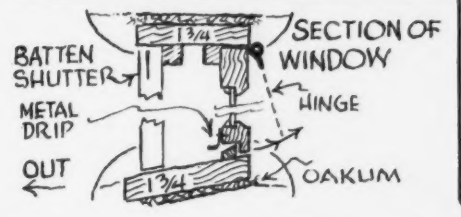


fig. 6 - SETTING DRIFT PINS





ished floor of say, random width "pegged" planks, fancy—like your corners. Countersink screws, then glue in wooden dowels to hide them. If your cabin will have much winter use, enclose space under it with solid foundation. Caulk openings between logs with oakum or plastic stuff. If cracks large, chink with small round poles before caulking or nail on narrow strips of metal lath and cement. Next apply raw linseed oil to exterior of logs. Nice coloring results from 1 pt. burnt umber to 5 gals. oil. Clear shellac or varnish, dull finish, helps preserve natural surface.

See sketches for some finishing details. G'wan, get to work.

—William E. Petty,
District Forester
—Clayt Seagears

Constructed in the winter of 1948-1949, Whiteface Mt. Lodge was a large frame structure built of cypress; its knotty pine interior was a mecca for skiers

Fire on May 6 this spring reduced all but chimney and base to smouldering ruin

Resurrection of Whiteface Lodge

Reconstruction of the building was begun August 1st by the Whiteface Mountain Authority, utilizing its own forces of skilled, unskilled workmen

Resurrection begins on the same building site. Picture windows will be 16x6 feet from which there's sensational view of Adirondacks. Inside will be lounge, snack bar, rest rooms, ski shop, first aid room, administration office

Coping is of spruce. Logs run from 12-18" in diameter. All were salvaged from blow-down storm of Nov. 25, 1950

Ready to put on the rafters. Over-all dimensions of lodge will be 97x37 feet. Accommodate about 500

Placing the log rafters. Lodge will be ready for use by December 15th. From it, 15 miles ski trails, 4 tows are available

WINTER SPORTS ROUNDUP

AT SKI CENTERS

Whiteface Mountain—From Wilmington: 3 intermediate trails — school slope — practice slope—excellent cross country trails—slalom trail—modern ski lodge; 4 rope tows on shorter slopes; 3,300-foot T-bar lift, to top of Marble Mountain; Sno-Cats for transportation to cross country and racing trails; ski school.

Belleayre Mountain—Off Route 28 at Highmount between Pine Hill and Fleischmanns: chair lift, platter pull lift, rope tow, ski school.

BOBSLEDDING

Mt. Van Hoevenberg Olympic Bobsled Run—8 miles southeast of Lake Placid Village on road to Elizabethtown: run about 1½ miles long, average drop of 10.1 per cent with minimum grade of 8½ per cent and maximum of 15 per cent; 26 curves.

ON THE TRAILS

Adirondack High Peak Country and Heart Lake (Lake Placid area) and trails radiating from Keene Valley: all marked trails not closed because of blown-down conditions open as usual for snowshoeing and cross country skiing.

Catskills: all trails open for travel under above conditions.

IN THE PARKS

Allegany State Park Region—ALLEGANY STATE PARK, 10 miles southwest of Salamanca, Route 17: ice skating, skiing—slopes, ski tow—shelter, tobogganing—slopes.

Central New York State Parks Region—GREEN LAKES STATE PARK, 10 miles east of Syracuse, Routes 290 and 5: skiing—slopes.

Finger Lakes State Parks Region—CAYUGA LAKE STATE PARK, 3 miles east of Seneca Falls, Route 89: ice fishing.

Long Island State Park Region—BELMONT LAKE STATE PARK, 40 miles east of New York City, Southern State Parkway: ice skating. BETHPAGE STATE PARK, 37 miles east of New York City, Bethpage Parkway: ice skating, skiing—slopes, ski tow—shelter, tobogganing — slopes. HEMPSTEAD STATE PARK, 20 miles east of New York City, Southern State Parkway: ice skating. VALLEY STREAM STATE PARK, 18 miles east of New York City, Southern State Parkway: ice skating.

Palisades Interstate Park Region — BEAR MOUNTAIN STATE PARK, 45 miles north of New York City, Route 9W: ice skating, skiing —slopes, toboggan runs. HARRIMAN STATE PARK, 35 miles north of New York City, Route 17: ice skating, ice fishing, skiing—slopes, ski tow—shelter. PALISADES-NEW JERSEY SECTION, 8 miles north of New York City, Route 9W, ice skating.

Taconic State Park Region — CLARENCE FAHNESTOCK MEMORIAL STATE PARK, 9 miles east of Cold Spring, Route 301: skiing—slopes, ski tow—shelter.

Adirondack and Catskill Region — JOHN BOYD THACHER PARK, 15 miles southwest of Albany, Route 157: skiing—slopes.

lobster

FAUNA

LOBSTERS are truly American. The American lobster is easily recognized by its two large claws and is found in water ranging from six feet to more than 600 feet, along the Atlantic coast from Labrador to North Carolina. He shouldn't be confused with his poor relations, called lobster tails, which are imported into this country from Cuba, South Africa, and the islands of the Pacific, while a few are caught off the coast of Florida.

Lobsters achieve their greatest size and abundance in the northern part of their range, from Maine northward. But they live in a wide variety of conditions, being found on rocky, sand and mud bottoms, and both in open water and among weeds.

Lobsters undertake more or less extensive migrations to and from deep water, but never migrate up and down the coast. Normally, the adult never leaves the bottom and is mostly a night feeder.

The food of adult lobsters consists of fish, either alive or dead, almost all kinds of invertebrate animals present in the locality, and small amounts of algae and eelgrass. They are also cannibalistic. The food is seized, torn and crushed by the large claws and then is taken up by the appendages around the mouth.

Reproduction in lobsters is decidedly different from that encountered in most of our aquatic food animals. Copulation occurs during early summer. The sperm cells of the male are deposited in an external chamber of the female where they live until the eggs are ripe. The eggs are shed from the female and fertilized during late summer, usually during July and August, but the time varies with locality. After fertilization, the eggs become attached to the appendages on the under side of the female's abdomen, where they remain until hatched some ten or eleven months later. Lobsters spawn only once every two years.

The fact that lobsters are covered by a hard shell makes growth a complicated process. As a lobster grows to approach the size of its hard shell, a new, soft elastic covering is formed between the flesh and the old shell. When the growth exerts sufficient pressure, the old shell is discarded. There is then a sudden enlargement in size over the entire body due to absorption of water. The first molt occurs on the second day after hatching, and the process continues as long as the lobster grows. During the first year the lobster molts from 14 to 17 times, but after the first year it occurs with decreasing frequency until growth is extremely slow and molting occurs only once each year. From six to eight weeks are required for a new shell to harden around an adult.

The growth of a lobster is relatively slow—a 10-inch specimen is usually five years old. But giants have been taken that measured almost two feet (nearly four feet when large claws are fully extended) in length and weighing from 23 to 25 pounds.

The normal color varies from dark blueish-green to brownish-olive on various parts of the body, speckled with dark greenish black spots. The appendages are variously tinted with bright red. Occasionally one finds a lobster that is blue, cream colored or red, but normally the red color comes only in cooking.

In the year 1896, an official report was made to the Dominion of Canada that the last great fishery for lobsters had reached a critical stage and the end was well nigh at hand. Lobsters the size of crickets were being canned, as well as soft shell and egg-bearing lobsters. The tourist trade ate up millions of baby lobsters, and a patrol boat seized 900,000 "shorts" on a single vessel bound for Boston.

That was a half century ago, yet we still have lobsters and a bustling lobster business. Although Man has been the principal enemy of this species, the weather, the lobsters themselves (which as aforesaid have a tendency to eat one another), and natural predators such as the cod are all contributing factors to a diminishing supply of lobsters. But since 1896, conservation has changed the picture.

NEW YORK has a number of laws designed to protect the lobster: A license is required to take them, a minimum size is prescribed, and New York is the only state that requires lobster pots to be so constructed that undersized lobsters may escape from them. In addition, lobsters with eggs on them may not be taken. It is recognized, however, that these laws—particularly the one protecting egg-bearing lobsters—are often violated, and that more enforcement is required.

As to the lobster business, it is indicated that some legislative changes will be required to keep our fleet of lobstermen on the job, to put lobsters on the table at a reasonable price, and to bring our State into line with the business practices of other states interested in lobsters. Canadian fisheries as well as those in the State of Massachusetts have been responsible for an increase in the legal size limit of lobsters, and there is every indication that Maine will soon follow suit. If New York is not to be left behind, we will have to have similar legislation.

—ALFRED TUCKER,
Supt., Marine Fisheries

DIVIDENDS IN DUCKS

PART II — The Program for Small Marshes

WE set forth in our article in the last issue our views on improved management of our present waterfowl population—management designed to provide better hunting. We also presented our plans with regard to the large marsh units which are important during the fall migration, both for ducks and duck hunters. In this issue we turn to the balance of our program, which involves a unique effort to produce larger numbers of ducks. As you will see, the direction of this effort has been dictated not by man, but by the ducks themselves.

It should be obvious that to have more ducks, what we need is, first, more of the kind of environment known to produce the most ducks. And second, expanded populations to occupy this additional breeding territory.

Your Department is convinced that a restoration program must be based not upon the establishment of areas where *man would like* the ducks to nest, but rather upon the creation of the type of territory to which *the ducks prefer* to go. It is evident to anyone who will take the trouble to investigate that ducks prefer the small marsh or pothole units when, come spring, it is time to raise families. The ducks clearly point out to you that, contrary to general public opinion, big marshes are *not* the places where the bulk of waterfowl production takes place.

For confirmation of this, take a look (as we did) at the big marshes around the Manitoba Lakes in Canada, and then visit the prairie pothole country to the westward. It isn't even necessary to go that far. All you need do is count the broods per acre on some of New York's big marshes; then compare that figure with what you find on some of our smaller type potholes—the three to 10-acre natural marshes.

Following these indications, New York began to build small marshes as an experiment. Here's a demonstration of what they do for ducks, taken from six small marshes constructed by the Department for landowners west of Rochester. These marshes are 3.4, 3.8, 5, 6.4, 9.2 and 15 acres respectively in size, and cost from $80 to $250 to create. Four had water on them for the first time this year; two have had water for two years. Duck food plants now are coming in naturally. In very cursory observations, 14 broods of blacks, mallards, blue-winged teal and wood ducks were counted on them this year as downy young, and there is a very good possibility there were at least six additional broods produced. Roughly, that's a brood for every two acres.

That's good production anywhere and in anybody's language. You don't need much imagination to get an idea what it would mean for better duck hunting if we had thousands of these small units in New York (or any other state). These marshes, by the way, do not benefit ducks alone. They also help pheasants, rabbits and furbearers.

But benefits do not stop here. The ponds supply water for stock of the landowner, provide him with fire protection, improve the water table on his farm, offer some fishing and other recreation, and produce additional income from fur and bait fish crops (some owners get as much as $400 annually from bait fish). When enough of the marshes are built, they will contribute to flood control, for these impoundments are back where the water begins.

All this suggests why New York has embarked on an extensive farm wildlife pond construction program, and why we feel this program must be duplicated up and down the Atlantic Flyway if there is to be really better duck hunting.

But the question is: How can we get enough ponds built as quickly as possible? Most of the sites are on private land, and therefore, we must work through landowners. New York has experimented with this aspect of the problem for several years. Originally, the Department was limited to assisting Soil Conservation District co-operators. This brought about the creation of the first small marshes, but the scope of operations was restricted because not all counties had Soil Conservation Districts, and not all landowners in those counties that *did* have Districts were co-operators. Financial aid by the Department started off in a small way and, as time passed, was enlarged, but it never covered more than a portion of the cost. This program did did not produce enough small marshes, or produce them fast enough.

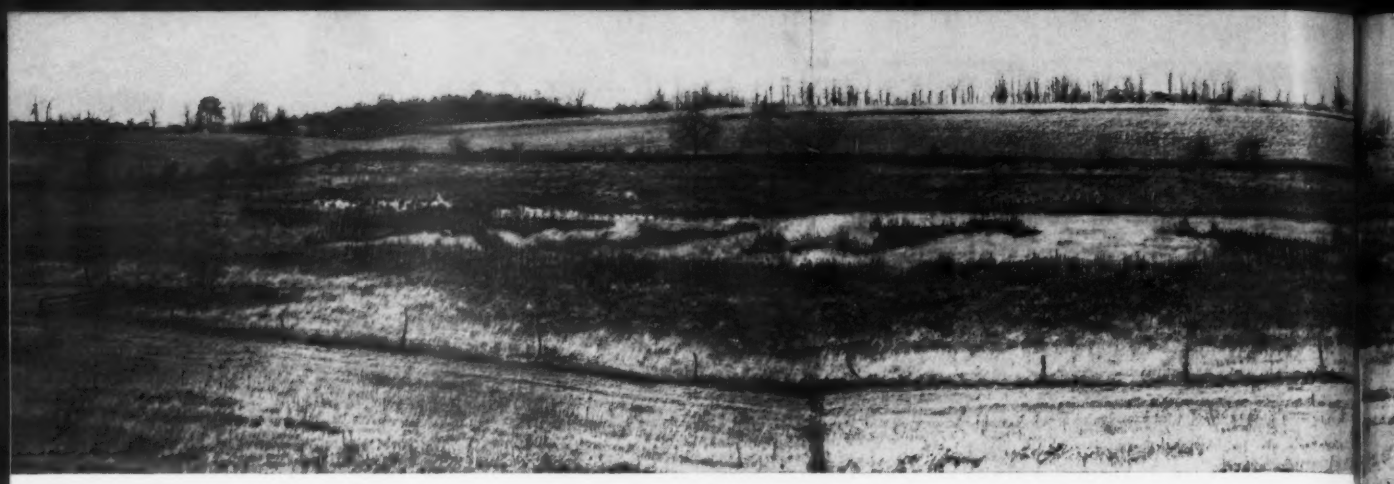
So now, because of the general public benefits, the Department has decided the best way to operate is to do the entire job for the landowner, without any expense to him, in return for a hunting rights leasing agreement so that the marsh may be a refuge. This agreement will be for five to 20 years, depending upon the cost of the impoundment. The expense will be underwritten with Federal aid moneys (P-R). Soil Conservation Service co-operators as well as landowners not yet in that program will be equally eligible.

To accelerate this big job, the Department is acquiring a number of mobile units of construction equipment which will be moved about the State to build the necessary impoundments. Game Managers are now at work signing up landowners for the service.

Improvement in the management of present populations will return enough ducks to provide breeding populations of native species on these new marshes, but, to get greater production, there is need for still another step—the establishment on these marshes of additional species of ducks which do not breed locally now. This is essential because generally there is less territorial competition *between* species than *within* species, and it is possible to have a larger number of nesting pairs of different species on an area than of pairs of a single species. As a result of this diversification of species, one may expect greater duck production from the individual marsh.

It is in recognition of this fact that for a number of years New York has been propagating a carefully selected strain of game farm mallards. These ducks have been raised experimentally in co-operation with regional waterfowl associations and released as ducklings, usually at five weeks of age. To check the results and improve techniques, these birds have been banded.

Survival of released ducklings to the gunning season has been good—up to nearly 75 per cent (Benson, N. Y.—field studies), and there have been band recoveries from hunters as high as 60



per cent from some release sites. Some losses must be expected because these ducks are subject to the same mortality factors which reduce wild broods. Nevertheless, survival of these hand-reared birds to the gunning season definitely has been adequate.

Returns from 5,334 mallard ducklings released upstate from 1946-49 total 925 (17.3 per cent). Of this number, 675 (92.4 per cent) were first year returns. From the region of release, 834 (90.2 per cent) were recovered of which 732 (79.1 per cent) were by hunting.

The proportion of band recoveries from these birds by shooting in the first year, and in the vicinity of release sites, was higher than for wild mallards —an indication of a greater vulnerability to gunning than of wild birds. The banding records further show that of the liberated game farm mallards which survive beyond the first winter following release, a large proportion return to the liberation site or vicinity thereof. These are the birds which establish new breeding populations of mallards in New York and add to our duck production; so the establishment of new breeding populations of mallards will be speeded up by anything that can be done to decrease this vulnerability. Much of the vulnerability undoubtedly has resulted from the practice of liberating mallards on the large marshes where hunting is done. As mentioned previously, these are not good breeding areas. The banding data shows that greatest mortality of released ducklings occurs on areas of heavy gunning pressure, and that if the birds are liberated on refuges, there is a much higher survival to the second and third years.

On the basis of this experience, a revision of the mallard stocking policy has been made. Hereafter, ducklings will be released only on isolated unoccupied natural potholes and on newly-created small marshes set aside as refuges. And, because providing a wild-type mallard requires special handling, all rearing will be done by the Department rather than in co-operative stations.

The stocking of mallards by the Department will continue only until breeding populations are established in satisfactory territories now unoccupied by the species. Then it will end, and natural stocking left to take over. A survey recently completed by the Department's nine Game Managers reveals that approximaely 3,500 mallard ducklings will be needed annually for this purpose for the next three to four years.

So that the most effective type of stock for this purpose will be available, a special study of mallard propagation is being set up for next year. Hand-raised wild mallards have been obtained from the Delta Research Station for this purpose through the co-operation of the United States, Canadian and Province of Manitoba authorities. Hatchability, raising success and survival of released ducklings from pure wild stocks, from wild-game farm crosses and from pure game farm mallards will be checked and compared.

After the mallard program, New York plans to commence introductions of other suitable species not presently nesting in any numbers here. Being given priority are pintails, gadwalls (grey ducks) and redheads. Work also will be done later with shovelers (spoonbills), canvasbacks and ringnecks. A study to develop techniques of producing supplies of ducklings of these species for introductory stocking is already under way, and what New York learns will be available to other states and agencies. A number of hand-reared wild-strain pintails, gadwalls and redheads have been secured for the study from the Delta Station.

The work on diving ducks is of peculiar interest because of their importance in a number of areas of the State, and any additional local production of divers will help hunting in those sections. On the Champlain-Hudson Flyway, there is an absence of diving duck concentrations along the Hudson River. An effort will be made to create a new population of divers using this route. The ringneck duck appears to offer considerable hope for that purpose. And, adding still another string to the Department's bow, techniques for handling Canada geese have been worked out on our game farms, and plans are being formulated for the introduction and development of goose flocks at each of the major waterfowl management areas.

We are convinced that this simple formula of better management—new marshes and additional breeding ducks —will insure better hunting for the future. However, to be most effective, it needs the widest possible application. For example, here in New York, game clubs and other groups interested in wildlife could build small marshes and so advance the date when there will be enough of them to provide the waterfowl production we need. The work must be duplicated in other states in the flyways and north of the border in Canada. With respect to the latter, there is a very definite need for some agency to assist in the creation of a network of small marshes in the agricultural areas of Ontario, Quebec and the Maritime Provinces.

If you disagree with us about the simple principle on which this program is founded, don't argue with me. Take it up with Mrs. Duck. She's the one who picks the small marsh for her maternity ward.

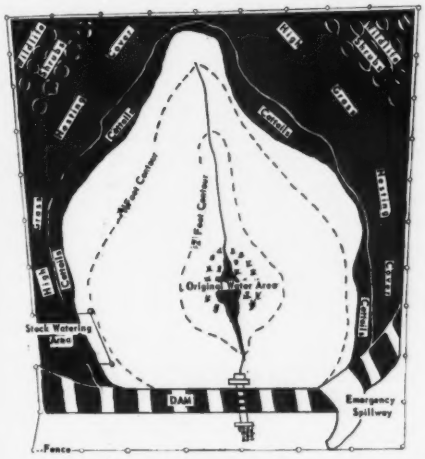
—Robert A. Wells

HOW
TO DO IT

(16)

BUILDING

A WILDLIFE MARSH



SITE FOR THE MARSH

CONSTRUCTION of a wildlife marsh can be an easy and inexpensive way of producing more ducks, pheasants, muskrat and rabbits. How to do it? Contact your District Game Manager when you have located a good site, and discuss your ideas with him.

A good marsh site must have a good dam site if it is to be developed cheaply. The stream should be fairly small with high banks close together at the lower end of the marsh site. The area on which the marsh is to be created should be flat enough so that most of the area can be flooded with one to three feet of water. Sizes of suitable marshes vary from one acre up.

Construction is started by stripping the topsoil and part of the subsoil from the dike site. Next the water control structure (see illus.) is installed, then a core of impervious clay is laid along the whole center line of the dike and the dike is completed by adding the earth-fill. Before dike completion, a ¼" to ½" hardware cloth apron (see illus.) should be buried about a foot beneath the sloping bank of the dike on the pond side and should extend for about 30 feet on both sides of the headwall of the water control structure. This is added protection against muskrat tunneling. When completed, the dike should be sown to grass to prevent erosion.

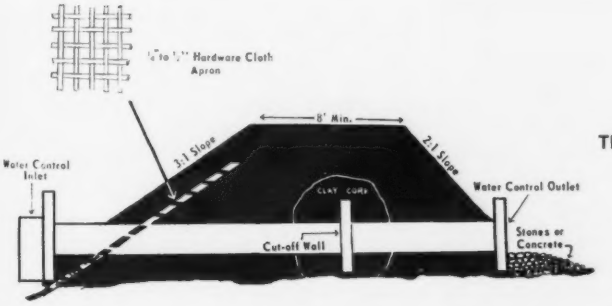
The dike should be built a few feet higher than the desired water level to make certain that it will never be overtopped by flood waters. An emergency spillway to handle flood waters is invariably a necessity.

The flash board outlet (see illus.) allows complete marsh draining and water level control at all times. This is necessary to maintain the kind of plant growth which the game and furbearers use for food and cover.

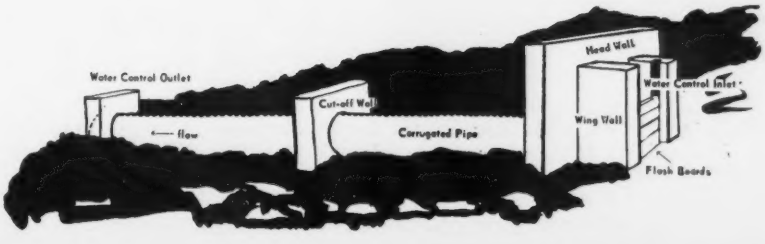
Before the marsh is flooded, it should be plowed or disked, if possible, to provide a seed bed for marsh plants. After flooding, the water level should be regulated to encourage cattail, sedge, and duck food growth. Spring water levels should be high to encourage duck nesting, then lowered in the summer to increase the growth of marsh plants, and about September the water should be raised again and held throughout the fall duck migrating season.

The average cost of construction for 27 small marshes built during the summer of 1951 in New York State was $271. If you or your club plan to build one, ask your Game Manager for help in planning. He will give it gladly.

—NICK DRAHOS



THE DAM



WATER CONTROL

SCATTER SHOTS

notes of general interest

OUT POPS WITBECK

In our last issue, at the request of our harassed Aquatic Biologists, we launched a modest manhunt for a mysterious fish-tagger known only by the name on the tags he used—Witbeck. Our fisheries men (who had been sent one of his tags) wanted to know (1) who was Witbeck, (2) *where* was he, (3) what was he up to.

For reasons best known to editors, we decided it would be advisable to play along with our Aquatic Biologists, and so we published a call for Witbeck to come on out. We had little hope of success. But no sooner had the magazine hit the mails than out popped Witbeck—with a full account of his activities that we now publish in our Letters section on page 36.

It's nice to have found Witbeck—he seems to be an old friend. But from our point of view it's even nicer to have our Aquatic Biologists over the barrel; now, they can hardly refuse to come through with magazine material when and as needed.

NEW HOMES FOR SNOWSHOES

"At one time the varying hare ranged throughout New York State, with the possible exception of Long Island. As forests were cleared for cultivation, the varying hare disappeared from most of its former range outside of the Adirondack and Catskill regions.

"Largely as a result of the reforestation program, some sections of the State once again have very large areas of woodland which offer promising habitat for varying hares. In most instances no nearby native hare colonies exist to repopulate naturally the newly reconstituted habitat."

These paragraphs are quoted from a report submitted by Joseph Dell as a part of the April 1, 1951 Quarterly Report for P-R Project 22-R. The report goes on to explain that tests of restocking such habitat with transferred wild hares had been carried out and indicated considerable promise.

Consequently a survey has been made by the nine District Game Managers to locate suitable habitats, now devoid of hares, where an enlarged stocking program could be undertaken to establish breeding colonies of this species. As a result of these surveys 31 release sites have been selected in 17 counties for the liberation of live trapped wild hares to be secured from remote sections of the Adirondack region.

Trapping operations should get under way about the first week of January, and the hares will be shuttled by State truck to the release sites which stretch in a band across the State from Chautauqua County on the west to Albany County on the east.

In no case will stocking be continued in an area once a breeding population has been established. In most cases the release sites are in counties having no open season for taking hares. This protection will be continued until such time as hares have become well established over a wide area of this now unoccupied range. Within five years it may be possible to have open seasons for varying hares in counties where these animals have not been seen for many years.

FALL PLANTING

Fall planting on State Forests this year was confined to three northern Forest District—Districts 6, 7, and 8. Species and quantities planted included:

White pine 3's, (age class) 6,500; red pine 2's, 411,000; red pine 3's, 14,000; Scotch pine 2's, 132,400; white spruce 2's, 759,400; European larch 2's, 17,000; for a total of 1,340,300.

Most of these trees were planted in Oneida, Lewis, Jefferson, Oswego, and St. Lawrence counties. A good survival is expected as plenty of moisture was present in the soil at the time the planting was done.

This fall's work brings the total planted to date on State Forests to over 290 million trees, on approximately 241,000 acres.

BULLFROG DIET

During the summer, members of a fish survey crew (Ontario-St. Lawrence District) working at Crooked Lake, Lewis County, decided that some of the big bullfrogs there would make a succulent addition to their dinner. A good mess of frogs was collected and while dressing out the legs there was opportunity to find out what the frogs had been eating.

Nearly every frog proved to be living off its neighbors—but not by begging. The commonest item of the menu was small frogs. Several small perch and golden shiners were also found. Bullfrogs are known to eat almost any small animal that moves within range of their tongues but, except in hatchery ponds, records of fish in their diet are comparatively rare.

EARLY SPAWNING TROUT

During the 1950 season the Conservation Department remodeled four of the brood stock ponds of the Randolph Fish Hatchery in such a manner that the length of the light day could be controlled. A wood frame structure was erected over each of the ponds, and each pond was outfitted with four overhead 150 watt lights that were controlled by a time switch. The lights were used to increase the light day; canvas was used to cover the frame over each pond when it was desired to decrease the light day.

The first year of operation resulted in the spawning of female brown trout during the 37th week of the year, about the week of September 9th. These fish had the light day increased from March into May. The longest light day was 22 hours and 15 minutes, shortest, seven hours and 15 minutes. The eggs produced by the fish under this treatment were normal in all respects. However, fish that had been subjected to the light day *increase* only, or to the light day *decrease* only, did not produce as good eggs, especially in the case where the

light days had been only decreased.

This year, 1951, the four ponds were operated in much the same manner. The light day was increased from March 4th to May 5th and then decreased until August 24th, when the first eggs were taken. The maximum light day was 22 hours and 15 minutes, the minimum, seven hours and 15 minutes. On May 5th, 20 fish were tagged and removed to a normally operated pond and 20 fish from a normally operated pond were tagged and placed in one of the controlled ponds.

Those fish that had been subjected to light day increases as well as decreases started spawning on August 24th—the 34th week of the year. On September 11th, the 37th week of the year, 73 per cent of the females had spawned and by September 25th—when the first eggs were taken from normally treated fish, 92 per cent of the controlled females had spawned.

In the case of the tagged fish, it was found that the increased light day influenced the fish to spawn two weeks earlier than normally, whereas the decreased day retarded normal spawning by two weeks.

The control of the light day on a brood stock makes it possible to advance the normal spawning date by eight weeks when the light day is increased and decreased as outlined. The early eggs make it possible to produce enough extra growth so that yearlings when planted will be legal fish.

FEATHERED AMBASSADOR

The ducks themselves are calling attention from distant points to New York's waterfowl program.

One of our game farm-produced mallards—reared by the co-operating Northeastern Waterfowl Association at Watertown, and released Aug. 1, 1950 as a five-week-old duckling in Dexter marsh—got a two-column headline a year and two months later in the Winnipeg, Manitoba, Free Press.

The headline, *No Ordinary Bird—Duck Carries Address*, appeared in the Winnipeg paper on October 1, three days after a local hunter had collected our mallard in the nearby Netley marshes. The bird weighed three pounds. It had the Northeastern band on one leg and the U. S. Fish and Wildlife Service band on the other.

Although the sex is not indicated, the chances are this mallard was a drake which took fancy to a hen from Manitoba on the wintering grounds and followed her back to Manitoba rather than returning to northern New York. The females fly back to the vicinity of the area where they were raised. Drakes return home only when unmated or when mated with a female from the area; otherwise, it's the old story of the gentlemen pursuing the ladies.

This isn't the most distant report of the taking of a mallard reared by the Northeastern Waterfowl Association, which has been co-operating so efficiently in the experimental phases of the State's duck rearing program. A Northeastern-reared drake was shot previously in Saskatchewan.

AN APPRECIATION

George H. Towne, Ticonderoga, president of the Adirondack Conservation Council of which the Essex County Fish and Game League is a member, sends along the following letter which the League recently received from the Essex County Department of Public Welfare, Elizabethtown:

My dear Mr. (John) Rumney:

We would like to express to you, and through you, to the Essex County Fish and Game League, a note of appreciation for the opportunity you gave to Clarence Sprague, a boy under the care of the Essex County Child Welfare division, to attend the Conservation Camp at Ray Brook. He has, we hope, written to you, but we would like to add our thanks to his.

He did get a great deal out of his week. He was most enthusiastic about some of the things he learned regarding conservation and insisted on his foster father hearing some things that he should be doing. He tried to pass on the things he was taught. In fact, he talked to any one who would listen to him of his experiences.

He was a boy whose father died when he was small but he could still remember going on walks with his father in the woods, and his father identifying different trees and different birds, etc. So that the experience in camp I think had a lot of meaning for him.

We feel that the kind of experience a boy has in the Conservation Camp is a most worth while and valuable one, and we thank you for making this possible for a boy under our care who has had few opportunities for many of the normal experiences which a boy living in his own family has.

(Mrs.) Mabel S. Gregory,
Sr. Case Worker

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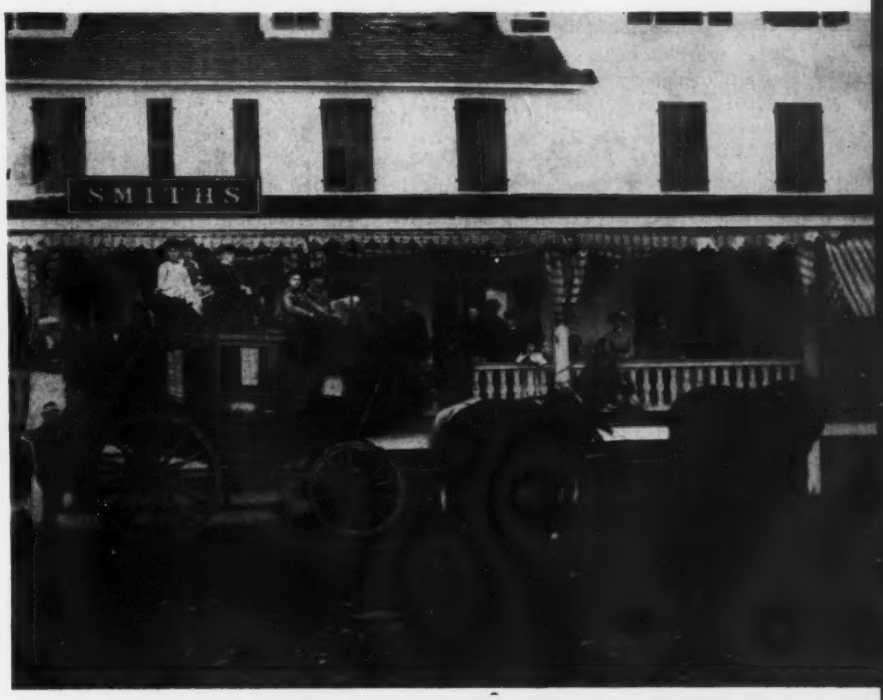
Inquiry: When writing this Department concerning your subscription, please include your name, address and code as it appears on your magazine address label.

Change of Address: Please give us six weeks notice—OLD and NEW addresses are needed.



The stage pulls up at Paul Smiths, 1887. (Photo courtesy of Frederick W. Wright, Jr.)

CRANBERRY LAKE—A NEW MANAGEMENT POLICY

Cranberry Lake, long famous for its brook trout fishing, has finally succumbed to one of the greatest enemies of the brook trout in the Adirondacks —the yellow perch. Coincident with the appearance and expansion of the perch in the lake over the past four years, the brook trout fishing has declined steadily. This decline has taken place despite intense efforts to maintain fishing through heavy stocking.

The deterioration in fishing has been readily apparent to the angler, and is substantiated by information collected. From 1947 through 1949 an average time of three hours was required to catch a trout; in 1950 the average time was 5.6 hours, by 1951 the time between bites had increased to the point that 7.8 hours were required to catch a trout.

The continued downward trend in fishing success has made it clear that it is no longer practical to manage the lake solely for brook trout. Many opinions have been voiced as to how to improve the fishing. The introduction of a warm-water species such as pike or bass has been suggested, but does not appear to be the solution at the present time. Experience in other Adirondack trout lakes has shown that the introduction of warm-water fish usually does not furnish satisfactory fishing and often leads to greater angler dissatisfaction. Since Cranberry is a cold, trout-type of lake, the best policy is to make every effort to manage it for fish which are suited to these conditions before considering warm-water species.

After study of the large amount of information available on Cranberry and discussion of the several possibilities with interested sportsmen, it has been decided to try rainbow trout. Rainbows cannot be regarded as a quick and sure remedy for all of Cranberry's troubles, but, results with rainbows in somewhat similar situations show enough promise to warrant a fair trial. So the lake was stocked with year-and-a-half old rainbows this fall, and an intensive rainbow stocking program is to be started next spring in an attempt to build up the rainbow population in as short a time as possible.

In addition, it is planned to try to establish landlocked salmon in the lake. Experimental plantings of salmon are to be made as soon as there is a supply available.

It should be pointed out that while brook trout are much less abundant than formerly, this species will continue to have a place in the overall management policy for the lake. Despite the perch and the possible development of a rainbow population, the lake with its large tributary system can be expected to furnish some brook trout fishing.

The Oswegatchie River above Wanakena is an integral part of the Cranberry Lake System. Apparently, perch have not found suitable conditions in the river because only an occasional perch has been observed—and these in the lower reaches of the river. Fishing success has remained fairly constant in the river over the past several years during the decline in the lake. The river, therefore, will continue to be managed for brook trout.

There is a moral to this story which is obvious and has been oft repeated: it need not have happened. Unfortunately, laws and the efforts of both Conservation Department and sportsmen are not sufficient to prevent such catastrophes, since only one slip-up is necessary. The complete co-operation of all who use our waters in preventing the unauthorized transfer of fish is absolutely essential if we are to continue to enjoy fishing for our native brook trout.

—W. M. Lawrence,
Sr. Aquatic Biologist,
Adirondack District

PHEASANT CHECK

This fall, for the second successive year, District Game Manager John L. Nemes in the North Central Game Management District conducted hunter checking stations around the Three Rivers Game Management Area (Baldwinsville) during the two-day pheasant season. He operated seven "road blocks" on roads leading from the area and estimates that about 75 per cent of the hunters using the area were checked. The information which was compiled is presented in the table.

One surprising fact reported is that more crippled birds were lost by hunters that used dogs than by hunters who did not use dogs. This same condition existed last year and Mr. Nemes is at a loss to explain it, although it could be that dog owners rely too heavily on their dogs and fail to mark birds down.

	1950	*1951*
Number of hunters checked..	440	730
Total hours hunted.....	1,067.5	1,887
Total pheasants bagged.....	101	196
Pheasants bagged with aid of dogs	64	124
Total hours hunter per pheasant bagged	10.75	9.6

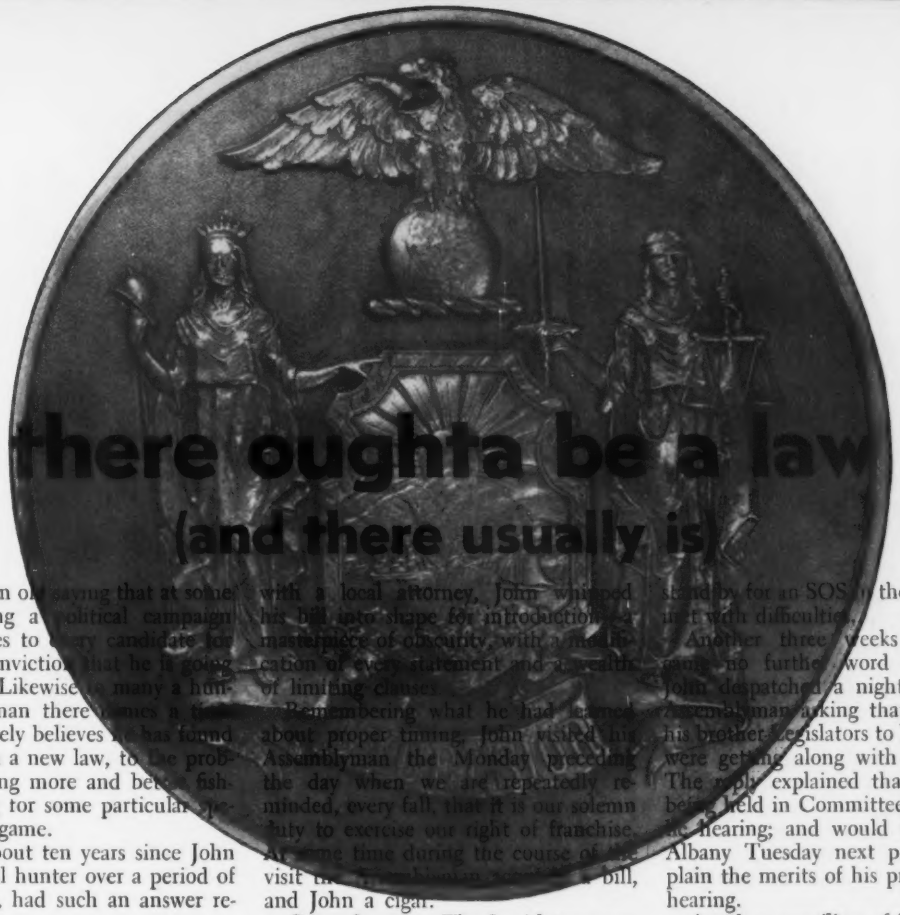
Other game bagged by these same hunters during the two days included 44 cottontail rabbits, 9 squirrels, 7 ducks, 6 woodcock, and 2 fox.

FOR BILL HOWARD

In a pine grove on the south side of the road at Lake George beach, looking out on the lake, is a memorial to William G. Howard, late head of our Division of Lands and Forests.

The bronze plaque was dedicated this past summer when District Rangers Ernest W. Blue and Clarence E. Dare, veteran Department men who served many years under Mr. Howard, unveiled the memorial and former Conservation Commissioner Lithgow Osborne gave the address.

Another tribute to Mr. Howard is a lean-to on the Johns Brook trail to Mt. Marcy, a gift to the State by the Adirondack Mountain Club of which he was one of the founders.



there oughta be a law
(and there usually is)

THERE is an old saying that at some time during a political campaign there comes to every candidate for office a firm conviction that he is going to be elected. Likewise to many a hunter and fisherman there comes a time when he sincerely believes he has found the answer, via a new law, to the problem of providing more and better fishing or hunting for some particular species of fish or game.

It is now about ten years since John Doe, an annual hunter over a period of some 40 years, had such an answer revealed to him.

John was typical of the millions of American sportsmen who every year "put it on the line" for licenses. In his middle fifties, he had his own shoe business, had prospered, and was looking forward to the time when he could abandon shoes—the sale of them, that is—and devote more of his time to his favorite sport. John was (and probably still is) what is known as a "grouse man." So steeped was he in the voluminous lore of the grouse that it was not difficult for John to convince himself that in order to remedy a deficit in local grouse populations "there oughta be a law."

Scanning through an old legislative manual, John learned that bills to be in proper shape to be offered to the Legislature need only be legible, double spaced, and have the name of the introducer on the cover. John even learned that the most propitious time to interest a legislator in shepherding a bill through the Legislature is any time during the week immediately preceding the first Monday in November. During this week, for some reason peculiar to legislators, they always may be found more condescending than at other times, though withal a very obliging group at any time.

Thus fortified, and in collaboration with a local attorney, John whipped his bill into shape for introduction—a masterpiece of obscurity, with a multiplication of every statement and a wealth of limiting clauses.

Remembering what he had learned about proper timing, John visited his Assemblyman the Monday preceding the day when we are repeatedly reminded, every fall, that it is our solemn duty to exercise our right of franchise. At some time during the course of the visit the [illegible] bill, and John a cigar.

Came January. The Legislature convened as the Constitution predicted it would. The program was following the pattern John had been told to expect. Among the bills introduced early in the session was John's. Printed copies were soon available and a sheaf of them was sent to John. With understandable pride of authorship, John distributed them among his friends with an appended note that the time now was near when grouse populations would start movement toward the high level of yesteryear.

No further word was received from Albany during the next month. John wrote his Assemblyman for a report and was informed that his bill was on the order of "first reading" and that it could not come up for passage until placed on the order of "third reading."

A little research on legislative procedure and John found this to be so, but construed the term "third reading" to mean that each legislator is required to read his bill three times. Having been told of the way in which legislators toiled throughout the day and often late into the night, he decided not to press for immediate action. Rather he decided to allow his bill to continue to travel in the regular orbit of the Legislature. Meanwhile John put in his time alerting the members of his Club to stand by for an SOS [illegible] the event his bill in it with difficulties.

Another three weeks elapsed and [illegible] no further word from Albany. John despatched a night letter to his Assemblyman asking that he check on his brother legislators to learn how they were getting along with their reading. The reply explained that the bill was being held in Committee pending public hearing; and would John come to Albany Tuesday next prepared to explain the merits of his proposal at such hearing.

Another unveiling of his black cheviot—the suit reserved for Sundays and funerals—a trip to the bank, and John was enroute to Albany.

Upon arrival John went straight to the office of his Assemblyman. The usual amenities between Legislator and constituent ensued, punctuated only by an aside to a brother Legislator on how fatigued last evening's six-hour session with the Governor left him, and John was led into the Senate Chamber. It fairly teemed with sportsmen. John was amazed at this apparent evidence of interest in his bill.

The hearing began and the bills on the agenda were taken up in the order of their appearance thereon. Conforming with legislative custom, the opposition was heard first, and John learned that many bills other than his would be considered. In late afternoon John's bill was reached. There was no opposition. And to John's surprise and consternation, none but himself was interested in speaking in its favor.

Now during the course of every fish and game bill's journey through the Legislature, there comes a time when the Conservation Department is asked to make a study of it and file with the Legislature a memorandum setting forth its professional opinion of the

(Continued on next page)

measure. The study of John's bill revealed that the evil it sought to correct had been recognized by the Legislature 20 years previously and that provisions in substance identical with those proposed by John had been in the Conservation Law for two decades. Any way, the Legislature killed John's bill.

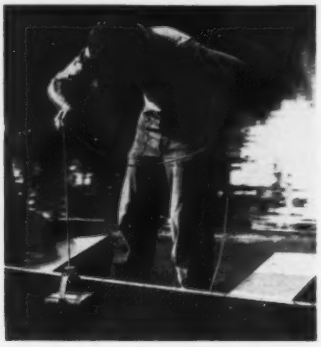
Now, needless to say, this story does not follow in accurate detail the experience with legislation of any particular sportsman. Nevertheless, it is suggestive of experiences through which the novice in law-making may pass should he undertake the writing of legislation without benefit of expert advice. It is not enough that the evil to be corrected shall be recognized. The law directed at its correction must be set out in terms so clear as to leave no doubt as to its meaning, and make unnecessary the invoking of maxims or rules of construction as a means of discovering intention. More than average knowledge of the precise meaning of words is needed. And an important requisite is an intimate acquaintance with those terms and phrases which by legal definition, when used in law, carry a connotation different from their ordinary meaning. And most important, a person not only should understand the methods employed, but also should know how to use legalistic material and where to find it. Lacking in these essentials, a person normally should not undertake—on his own—the drafting of law. The experience of John Doe clearly reveals the limitations of the average novice invading the field of the specialist.

The moral of the story is this: Whenever you find yourself concluding that "there oughta be a law," place your ideas before the Conservation Department. We are more than willing to admit that we are not infallible, but on the other hand, we *have* had more experience with Conservation Law than most people. It may develop that there already is on the books such a law as you propose. There usually is. Or perhaps there is a sound reason, not previously considered by the novice, why such measure would not work.

* * * *

WHAT has become of John Doe? John is still in the shoe business, but writing no bills—except those addressed to customers. When pressed for a reason, John tells of a reciprocal agreement he has with the Conservation Department under the terms of which he agrees not to write any bills and the Department agrees not to sell any shoes.

—JUSTIN T. MAHONEY,
Dir., Div. Fish & Game



Aquatic Biologist

Salary: $3451 at time of appointment and increases by five annual increments to a maximum of $4176. (In addition, a cost of living bonus will be paid during the 1951-52 fiscal year.)

Civil Service Status: Competitive Civil Service. Personnel recruited by means of open competitive examination.

Positions: (Number and location): There are 12 Aquatic Biologists, each assigned to a fisheries district office or research unit.

Promotion Opportunities: There is a direct line of promotion to the higher grade position of Senior Aquatic Biologist.

Working Conditions: With the exception of office or laboratory duties, work is performed out-of-doors from spring through the fall. Winter months devoted mostly to office work with occasional field assignments. Field work is performed on lakes, ponds and streams and usually involves the use and handling of small boats, nets, miscellaneous gear and equipment and the transportation of it to work locations. The basic working week is five days and 40 hours. However, this may vary considerably according to the demands of various assignments. Employees earn 20 days vacation each year and earn one day of sick leave credit each month. Unused sick leave may be accumulated to a maximum of 150 days. Reimbursement is made for expenses incurred on official business.

Retirement: Membership in Retirement System compulsory. Employee contributes on payroll deduction basis. Variety of retirement benefits.

Duties: Under supervision of unit leader, usually a Senior Aquatic Biologist, carries on investigations in the field of aquatic biology relating to the improvement of fish resources. Assisting in the conduct of aquatic surveys of lakes and streams, and in the diagnosis of factors limiting or affecting fish life for the development of management methods. Assisting in the testing of management methods and studies to determine survival, growth rate, food habits, migration, effect of polluting substances, etc. Enumerating catch records of angling. Preparing survey reports and charts. Assisting in the care and maintenance of equipment and records. Special research assignments vary with the position.

Qualification Requirements: *Physical:* Good physical condition, and freedom from any disabling mental or physical defects. *Education:* Graduation from college in a four year course leading to a bachelor's degree including one or more courses in each of any four of the following six groups of subjects: (1) Biology, Botany, Zoology; (2) Limnology, Fish Culture; (3) Ichthyology, Vertebrate Taxonomy, Field Zoology, Natural History; (4) Invertebrate Zoology, Entomology; (5) Comparative Anatomy, Physiology, Bacteriology; (6) Fish or Wildlife Conservation, Fisheries Biology. *Experience:* Two years of satisfactory practical experience in fish conservation or in teaching one of the foregoing subjects.

Special Knowledges and Skills: Good knowledge of aquatic biology, including fish life and environmental conditions in lakes and streams. Knowledge of stream improvement, stocking, control of undesirable fish, pollution control, and other factors of management. Ability to write clear, concise, and comprehensive reports. Ability to meet the public and establish good public relations. Possess tact, good judment, integrity.

NEXT ISSUE:. *Forest General Foreman.*

FOR YOUR INFORMATION

ICE FISHING ROUNDUP

New York's frostbite anglers on Lake Champlain last winter were part of a joint survey conducted to get some idea of what the lake was yielding to ice fishing. And according to the New York-Vermont census figures, the lake did all right and so did the fishermen.

Four of the zones into which the lake was divided lengthwise were split between Vermont and New York while the fifth (at the north end) was entirely within Vermont. The census was run once on each of the week days selected at random during the month; thus, seven fishing days per month or almost a quarter of the actual fishing effort was considered.

Vermont biologists contacted about 2,600 anglers and New York biologists interviewed about 2,300. Approximately 10 per cent of those contacted were women, or children under 15 years.

The anglers put in about 16,500 hours, took 48,600 fish including 29,000 yellow perch, 17,000 smelt, 600 rock pike, 600 northern pike, 500 cisco, 400 walleyes, 300 chain pickerel and 200 other fish.

The New Yorkers' success by zones:

Zone 1 (Ticonderoga area), 899 anglers caught 1,567 fish.

Zone 2 (Westport area), 681 anglers took 5,955 fish.

Zone 3 (Port Kent area), 246 anglers got 3,139 fish.

Zone 4 (Plattsburg, north), 455 anglers caught 6,025 fish.

Summing it up, 2,281 New York anglers (only 0.4 per cent were nonresidents) caught 16,686 fish or 1.2 fish per man-hour of fishing effort.

Since there has been no extensive investigation of the Lake Champlain fishery in the past, the joint effort was in the nature of a preliminary inquiry aimed at finding facts about the fish populations of that body of water. This type of research, if it is to yield useful information must of course be carried on over a period of at least ten years to get a true picture.

However, the frostbite anglers did remarkably well when the winter was not considered ideal for ice fishing.

CHRISTMAS TREES

Christmas tree prices (on trees sold in the process of thinning State Forest plantations) were established in October in the usual manner: Bids were obtained on the various species available. The Bureau of State Forests, reporting the results of the bidding, discloses that all the prices were substantially the same as last year with the exception of Douglas fir, which showed a considerable increase.

The prices: Red pine, 50 cents; Scotch pine, $1.19; Norway spruce, 76 cents; white spruce, 90 cents; balsam fir, 91 cents and Douglas fir, $2.51. These are per tree prices, on plantation run.

TURTLE PREDATION

Maine's Co-operative Wildlife Research Unit has uncovered evidence that fluctuations in water levels play an important part in regulating losses of waterfowl to predation by snapping turtles. In a year of normal water levels nearly half the turtles trapped on one study area had fed on birds; in a year of high water, only 10 of 72 specimens contained birds. In the latter year, instead of being confined to channels where they were vulnerable to the torpedo attacks of turtles, duck broods were free to move over the flooded marshes.

But the leader of the research unit cautions that there is still insufficient evidence for a blanket condemnation of the snapper as a waterfowl predator. He suggests sportsmen wait until the final results of the study are known before undertaking intensive local control programs as a waterfowl conservation measure.

FISH SALVAGE

In a preliminary report on the 1951 salvage operations, the Bureau of Inland Fisheries says that as of October 31 the Department salvage crews netted 55 closed bodies of water throughout the State and thereby acquired pan and game fish totaling 128,832 pounds for stocking in 176 waters open (as opposed to closed) to public fishing.

In the process the salvage crews netted and destroyed 25,000 pounds of rough fish (mainly carp and suckers) as well as 3,000 pounds of snapping turtles. At Howland's Island alone, where crews netted ponds on the Game Farm, 51 snapping turtles weighing up to 40 pounds each were caught and destroyed—a real contribution toward reducing predation on ducklings reared on these ponds.

Weather permitting, salvage operations will continue as far into December as possible. (Dec. 10: Salvage discontinued; crews now making and repairing equipment.—Ed.)

MULTIPLE USE

On June 10, 1947, in connection with the Ontario-St. Lawrence bass work, a 13¾-inch, 1 lb.-7 oz. smallmouth bass was tagged at the head of Carleton Island, St. Lawrence River.

On July 21, 1948, Mr. James Strong of New York City caught the same bass a few miles away, in Canada. Sportsman Strong released the bass.

On September 6, 1951, Mr. K. E. Kerling, also of New York City, caught the same bass off Hinckley Shoal perhaps a mile from its 1947 starting point.

Considering the abundance of fishermen, there should be more like Mr. Strong. Releasing a good fish may not increase the number of fish—and then again it may. One thing is certain, however: If enough fishermen do it, it will make for a lot more good fishing.

PROMOTION

The Alfred University Conservation Club has undertaken the first CONSERVATIONIST subscription sales campaign that we've heard of in any university. Arnie Holmberg, one of the club members, recently wrote us for sample copies and subscription blanks, and of course we sent them along. We appreciate that kind of help very much.

BEAUTIFUL LAKE GEORGE

The photograph above was sent us by Barnett Fowler of the *Schenectady Gazette*. He took it this summer at Montcalm Point, Lake George.

He and his son were canoeing on the lake and became so disgusted with the appearance of some sections of the shoreline that they measured off a 15-foot strip of beach, piled up all the junk they found in that strip, and photographed it. Included in the pile but not clearly shown in the photograph is a lot of broken glass, picked up in the shallow water just off the beach.

We don't mean to single out Lake George for this sort of attention; everybody knows of other lakes (and woods, and picnic places, and roadsides, and streams) that have received the same kind of treatment. What we do mean is that Lake George is a beautiful lake, and the least we could do would be to try to keep it that way.

PINTAIL PEREGRINATIONS

Bands from the Canadian pintail ducklings released this year on marshes in this State have already been received from as far away as Minnesota.

Of young pintails stocked July 8 on the Spicer marsh near Apalachin in Tioga County, one drake was shot October 7 twelve miles southeast of Hector, Renville County, Minn.; another drake was shot October 15 in the Mississippi River Bottoms, Trempealeau County, Wis.; a female was shot October 10, near Bowmanville, Ont., north of Lake Ontario and east of Toronto, while another female was taken the week of September 15-22 at St. Jean, Quebec, north of Lake Champlain.

A female pintail from the group stocked July 11 on the Moore marsh southwest of Geneva, was shot October 6 at Mitchell's Bay, near Chatham, Ont., east of Detroit. A drake from the ducklings stocked July 10 on the Lippincott marsh at Halsey Valley, near Tioga Center, Tioga County, was shot October 27 at Spencer marsh, about 15 miles from the point of liberation.

Nearly 100 pintails were released on these three New York marshes in connection with Cornell University's evaluation of small marshes as a game management practice. The objective is to establish pintail breeding populations. Next year will determine whether these juvenile birds, which scattered so widely in their first flight, will come back to the areas of liberation to nest and bring off broods. The ducklings used were hand-reared, wild strain Canadian pintails supplied by the Delta, Manitoba, research station of the American Wildlife Foundation and the Wildlife Management Institute.

BUSINESS IN PINE

Currently, the Lower Hudson Valley (in District Forester Earl D. Brockway's District 14) presents an interesting example of integrated wood utilization, our Bureau of Forest Management reports.

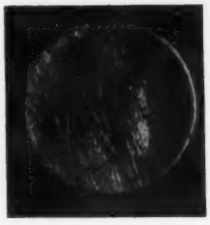
In this area red pine in commercial quantities is a plantation tree—wild ones are few and scattered. A piling operator from nearby Connecticut is buying trees of suitable straightness and size (13″-22″ butts, 50′ to a 6″ top). This is the cream of the crop and brings a proportionately good price. Sawlogs 8″ on the small end and 12′ long are saleable to local mills. The next smaller size, 8″ top by 8′6″ long, goes for highway guide rail posts. Next step down is for tobacco poles--4″ top by 12′ long—and fence rail stock—3″ by 11′ long. Lowest in quality and size requirements is feltwood: at least 4″ on the small end, 4′ long and in the larger sizes, reasonably straight.

All of which means simply that any stick of pine 4″ in diameter at the small end and 48″ long is saleable at the roadside. The price goes up with the quality of what you've got to offer.

GOING TO PLANT?

Over 5,000 orders for 25,000,000 trees have been received to date by the Bureau of Nurseries for spring planting work. This compares favorably with the demand for trees at this same time last year.

Due to expansion of the nurseries during the past few years the annual tree production is now at the rate of 40,000,000 trees, and although 25,000,000 have been ordered there are still available substantial quantities of white and red pine, white spruce and Japanese larch—four of the more popular species. Inasmuch as the Department is following a first come-first served policy in filling orders for trees, it is advisable that prospective planters secure their application blanks from the Department—and get them back to the Department, filled in—without delay.



BIRD BANK

That thing in the photograph—it's a dime, or at least it was. But Don Haemmerlein of Rensselaer doesn't believe the person who lost it in a grain field near Poestenkill in Rensselaer County will want it back. He found it—in the gizzard of a pheasant he shot the second afternoon of the season. Haemmerlin was with Clay Burnett of Cedar Hill when they flushed the cock (apparently this year's bird and unbanded) along with several hens.

The worn appearance of the dime is apparently due to the abrasive action of the gizzard contents, but nobody here is prepared to say why the pheasant decided he ought to load up on currency.

IT'S TOUGH ALL OVER

Noah John Rondeau, the hermit of Cold River Flow (Oct.-Nov. '46), in case you're interested, had a "good summer." But, he added laconically, (in response to District Forester Bill Petty's pressing inquiry as to just how well he had fared):

"I didn't make any money."

Noah, at the time, was spending a few days in Saranac Lake. He said he planned to spend the winter back on Cold River.

IF you are worrying about your taxes for 1951 and dreading the job of making out your income tax return, you may feel a bit better about it to know that the State of New York has much the same problems.

The State is the owner of some 3,000,000 acres of forest land. On these holdings the State pays taxes to local communities, but the determination of the amount to be paid—and to whom it is paid—is far from a uniform or simple procedure. The difficulty is that several separate and distinct provisions of law apply:

Paragraph 4 of Article I of the Tax Law specifically exempts from taxation the "property of this state other than its wild or forest lands in the Forest Preserve." This provision would appear to exempt from taxation all lands owned by the State except those in the Forest Preserve. Such, however, is not the case. Section 22 of the same Article of the Tax Law, which provides for the assessment and taxation of State lands at a "like valuation and rate as similar lands of individuals within the tax districts where situated", includes as assessable lands all or parts of certain other classes of State-owned property, including prison lands in the Town of Dannemora, lands under lease from the United States for a term of 50 years or more, and lands in the Towns of Sherburne, Otselic, Pharsalia, Berlin, Stephentown, Redfield, Antwerp, Lorraine, Worth, Brownville, Morris, Pittsfield and Italy (County of Yates). The latter were acquired for use by the Conservation Department for reforestation or game refuge, fish hatchery or game farm purposes.

Nevertheless, there are substantial acreages of reforestation areas as well as game refuge, fish hatchery and park lands in other towns of the state which under Article IV still remain exempt from taxes. Moreover, the reforestation areas not included in the above listed towns are (by the provisions of Section 60-A of the Conservation Law) exempt from State and County taxes, but pay the local town, highway and school taxes. This section also provides further that these reforestation lands shall not be assessed at a value in excess of the prices paid for them by the State, and that assessments on such lands given to the State shall not be greater than the assessed valuation of two years previous to the gift.

When it comes to assessment and taxation, therefore, assessors and State officials must ascertain in each case whether or not the State lands are (1) exempt under Article IV, (2) included in Section 22, or (3) affected by Section 60-A of the Conservation Law. To make this situation still more complicated, the present system of assessment and taxation results in widely different valuations and taxes for the same general quality of land in various sections of the State.

The total State tax bill for Forest Preserve, reforestation and other special lands amounts to approximately $2,000,000 annually, of which nearly a million and a half represents taxes on the two and one-half million acres of Forest Preserve lands in the Adirondacks and Catskills, and nearly $100,000 on the 550,000 acres of reforestation areas, or State Forests, located outside of the Forest Preserve area. The remainder represents the tax on non-exempt prison lands, game refuges, fish hatcheries, etc., not covered by Section 22.

In a number of counties the State is the largest single landowner and, therefore, the largest single taxpayer. For instance, of the million and a half tax paid on the Forest Preserve, nearly one-third, or approximately $500,000, is paid to Hamilton County as taxes on the 641,000 acres of State-owned land therein. In this county, the State owns over 50 per cent of the total land area, and the single Town of Arietta receives over $100,000 in State tax money. In Herkimer County, where the State owns approximately one-third of the 943,000 acres in the county, the Town of Webb alone receives $138,000 in taxes on the 151,000 acres of State land. Similar situations exist in the Towns of Harrietstown, Franklin County, and North Elba, Essex County, where the State owns about one-fifth and one-third, respectively, of the total acreages.

Of the $100,000 paid as taxes on the reforestation lands, over $12,000 is paid to the County of Chenango, nearly $3,000 to the Town of Pharsalia and $1,500 to the Town of McDonough. The State-owned acreage in the latter towns is approximately the same—8,000—the difference in the amount of taxes being caused by the inclusion of the Town of Pharsalia in the provisions of Section 22 of the Tax Law.

There should be no complaint by local governments or residents of the Forest Preserve counties as to the taxing of State lands. Perhaps the present system is well founded, in that if these lands were exempt from taxes, the State might have to increase its State-aid in various forms to compensate for loss of tax revenue. Some criticism has been made of the assessment of reforestation area lands at a price not to exceed the purchase price. However, the situation is that these lands, when purchased, are almost entirely idle and abandoned farm lands, either tax delinquent or about to become so. Following State acquisition, they are put back into production, and back onto the list of tax-paying properties.

THE State's tax program does insure a permanent tax base, one on which town governments may rely in so far as the State lands are concerned. The State ownership of forest land, therefore, does not cause an increase in local taxes or assessments, and in many cases results in an increase in local tax revenue.

—A. S. HOPKINS,
Director, Lands & Forests

LETTERS TO THE EDITOR

HUNTING ACCIDENT?

Dear Editor: Call me a crank. The deer season is 10 days old and already two men have been killed by our moronic meat hunters. According to the papers, the first one killed, Howard Trushaw, was mistaken for a deer. How in hell can this be regarded as an accident? It is a deliberate violation of the law.

According to the Fish and Game Syllabus, a buck deer is a deer with horns of 3 inches. In other words, visible. I'm sure Mr. Trushaw did not wear horns. How then could he be mistaken for a deer?

Can't we get some stiff legislation against these trigger-happy half wits? Revoking their hunting privileges in the State, fines and prison sentences would make them stop and think before shooting at "flashes", sounds, and brush movements. Gun safety education is forgotten in their blind lust to kill meat—doe, buck or man.

Great steps have been made in this direction with regard to the jacklighters and other violators. How about the "goons" next?

Ernest Hahn, South Bethlehem

HERE'S WITBECK

Gentlemen: Let me introduce myself as one of your original subscribers. However, I often get behind in my reading, so had to be shown your challenge on page 27 of the Oct.-Nov. *Conservationist* that I come out from under my rock and be identified. Well, you asked for it, so here's the lowdown.

My personal project began in June 1948, and has progressed to tag No. 106. No. 98 (see second letter), recovered by Mr. Lobdell, was applied to a 10-inch largemouth bass caught Sept. 29 in Crooked Lake and released at Smith's boat landing. It was taken on worm bait. Mr. Lobdell may have been disappointed at the lack of reward, but he didn't know the worst. A 15-inch bass was also released (Tag #99) along with the 10-inch one, but his luck brought him the wrong one of the two.

What percentage recovery, you will ask. Well, #98 is the 6th return of the lot. Four others were recovered after intervals of 6 to 18 days, but the real thrill came from #74, applied to an 8-inch brown trout, June 24, 1950 and recovered August 5, 1951. In the 13 months the trout had increased to 9¾ inches—and that without leaving home. As far as my records could determine, he might have come from under the same rock both times. One isn't generally careful in handling a 10-inch trout in this vicinity, but I spied the tag just in time to save his neck and as he seemed unhurt, let him go again—sentimental me. So if you catch #74, it will be the third time.

Second Letter:

I wish to offer further testimony on this tagging matter. In the first place there is a discrepancy. When I wrote you my letter of identification of last week, my mind was so fixed on the #98 that I failed to notice that Mr. Lobdell's catch was a trout. That being the case, somebody must have read the tag #86 upside down, thus obtaining 98.

#86 was applied to an 8-inch brook trout. That is one of the fish that I have caught twice myself, first on July 3 and second July 21. It appears to have furnished sport at least three times. Not bad.

R. D. Witbeck, Watervliet

AFTER THE STORM

Dear Sir: I am forwarding to you a snapshot recently taken by me of a high stump in Westchester County. The picture resembles the stump in *The Conservationist*, the stump in my picture apparently being even somewhat higher.

The hemlock in my picture was one of many blown down during the great storm of November 1950. The fallen trees were salvaged by sawing into lumber. The first cut on this particular tree was made well up the trunk because of the damage to the lower part, which shows in the photograph. Once the greater part of the weight of the tree had been removed, the stump righted itself and the roots are settled back into almost their original position.

William S. Glazier, New York City

HELP ON THE LAND

Dear Sirs: I recently moved to a new location which has about five acres of land. This is quite a come-down from my former place which had about 100 acres and always had a good supply of game. I'd like to increase the bird-ability and small game-ability of these five acres. Whom shall I get in touch with in the Conservation Dept. for trees and shrubs to do this?

L. Pringle, Jr., Rush

● *Your District Game Manager and your District Forester will be more than glad to help you out, no matter what the size of your property.—Editor*

FERNS (PLENTY)

Dear Sir: In the June-July 1950 issue of *The Conservationist* I read A. T. Shorey's short but interesting article about ferns. I live in the country near Port Jervis, Orange County, and in the past few years have become an amateur but ardent fan in collecting and mounting ferns.

Mr. Shorey's article states that a locality in which more than 15 varieties of ferns grow is exceptional. I would like him to know that our place is exceptionally exceptional. I have found 27 varieties growing right here at home, including the oak fern and the walking fern.

I would enjoy comparing notes with other fern enthusiasts either by correspondence or otherwise.

Mrs. Lillian L. Hammond, Sparrowbush

RIGHT CHURCH, WRONG PEW

Dear Sir: I can see how a man can get lost in a blow-down area, but I think the sure way to get lost would be to follow Fred Everett's map of Warren Co. (shown in the last issue of *The Conservationist*). I had a man almost call me a liar today when I told him he was in North River. He said he knew better and gave me a look at Everett's map, which I had already seen.

The kids changed a lot of signs here Hallowe-en, but they haven't changed the towns yet. We don't turn in North River to go to Bakers Mills and, so far, they don't turn off at North Creek to go to 13th Lake. Better get after that man or we are going to have to look up a lot of lost hunters.

Perry Ehlers, North River

● *The trouble is I've only been in North Creek and North River about 200 times. To which town do I owe the apology? To both, I guess. —Fred Everett*

INSTRUCTING JUNIOR HUNTERS

Gentlemen: Just how I will be able to hit pheasants at 9 a.m. tomorrow, I don't know. After running nine N.R.A. Junior Hunter Instruction classes in the past two weeks, and assisting two other instructors at the Twin City Rifle Club in several more, I find that there must have been 6,318 or more junior hunters who wanted this instruction tonight, so they can go hunting in the morning.

Everytime the phone at the store rang, it was someone who wanted to be instructed immediately. When I said that it was impossible to hand out the equivalent of four hours of instruction (which includes the firing of shots) while trying to sell shells, guns and clothing to other hunters, I would be reminded by some irate parent that "my son knows more than any of you instructors—he can break 25 straight at skeet; he has used everything from BB guns to shot guns all his life; there isn't anything about guns or game that he don't know; I can't see why he has to take any instruction when he knows more than most grownups"—and so on ad infinitum. By now, 10 p.m., I have probably been cursed, cussed and discussed more than Truman.

Howard H. Fischer, Niagara Falls

● *Maybe your efforts aren't appreciated by the general public, but they certainly are here in the Department. So are your problems. And we feel sure that anyone really interested in safer hunting is solidly on your side.—Editor*

BUCKSKIN GLOVES?

Gentlemen: I read and enjoy so much of the correspondence published in your magazine that it occurs to me that your readers can help me out on a problem.

Until a few years ago I was able to send my "annual" buckskin to a glove manufacturer who has since passed away, much to my regret. This man tanned my buckskin in natural color and did not peel it (except in heavy neck sections) and returned to me large, loose fitting heavy work gloves which were truly wonderful. I could wear light wool gloves under them. My fingers did not touch the ends when I gripped my axe or splitting hammer and therefore did not get cold. And when they got wet as of course they did, twice a day, I changed to another pair, and they dried out just as soft and pliable as before.

As I recall it these gloves were reinforced across palm and thumb grip and I know the thread did not break or rot (as happens to "store" gloves) until the buckskin had worn out.

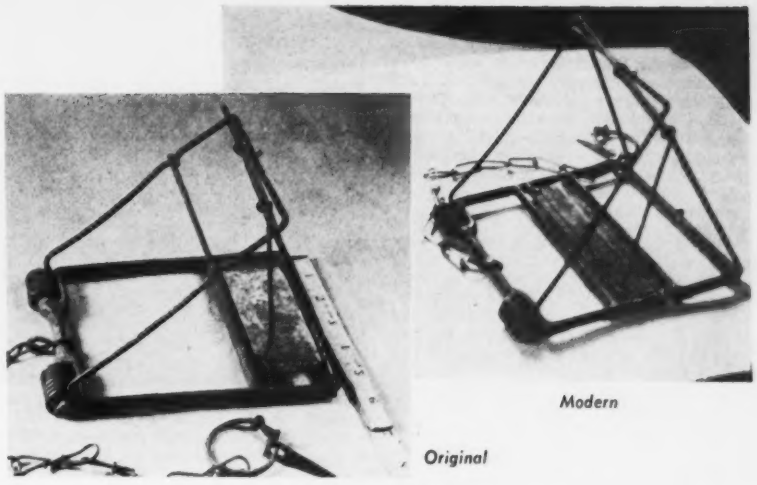
Can any of your readers tell me who can and will make such a glove to my size. I do not want the usual dress glove. Many manufacturers make these very well, but my bureau draw is full of them and seldom used.

Frank Whitney, Cherry Plain

FLY FISHING ONLY

Gentlemen: Sometime I hope you will be successful in securing the necessary authority to restrict certain sections of your beautiful public trout streams to fly fishing only. I am no dry fly purist—I even use a spinning outfit on occasions—but we all know what bait fishing can do to freshly stocked heavily fished streams. As you undoubtedly know, several sections of certain of our Connecticut streams are thus restricted, with highly satisfactory results. You have so much more public water than we have that I should think it would be possible for you to restrict certain sections without interfering with the inalienable rights of the worm disciples, who are just as much experts in their line as the fly fishermen.

Bradford Boardman, Bridgeport, Conn.



Modern

Original

TAYLOR TRAP

Gentlemen: The last issue of *The Conservationist* contained an article on early traps which were developed apparently through the ideas of trappers who could not buy manufactured items. Under separate cover, we are submitting the T. H. Taylor trap, which was constructed for use on runways for small animals. Mr. Taylor came to Lake Luzerne in the latter part of the 1800s and while trapping around here he made and secured a patent on a trap which was only slightly different from the one we are sending.

The model trap which you will receive was manufactured and sold by us for some time and we still have a few hundred in stock. However, with the metal situation as it has been, over the past few years we have discontinued active selling of this item. But if it is interesting enough for you to use, we would be pleased you do so.

N. F. Powers, Ketchum Mfg. Co., Inc.,
Lake Luzerne

RETIRED, BUT NOT FORGOTTEN

Dear Sirs: About 1920 (the Department) held a revolver contest each month for the Game Protectors in the Capital District. I was just back from the national matches where I had taken a course as an instructor in rifle, pistol and revolver from the government experts.

I had hunted with Henry Teal (Supt. of Law Enforcement, retired Sept. 1) several times and we were close friends. He asked me if I would instruct him in revolver shooting, which I gladly did. He improved very rapidly and it got to the point where he was winning this monthly contest nearly every month.

Ammunition for the 38 Special was quite expensive. I had all the loading tools and reloaded his ammunition at a fraction of the cost of factory made ammunition. It was unnecessary to use the full charge loads at the 75-foot range being used for these contests, so I reduced the load. The 38 Special shells were originally made for black powder, but the modern smokeless powder required only a fraction of the powder space required for the black powder. I found if the revolver were tipped down before shooting, the powder would go up against the bullet and the fire from the primer would not always ignite the powder quickly; then there was a delayed explosion, affecting the aim and upsetting the scores.

To correct this condition I used the reduced load of smokeless powder, on top of it put a quantity of cream of wheat, and then inserted the bullet in the shell. This held the powder back close to the fire from the primer. The fire from the powder would scorch this cream of wheat and produce a peculiar odor.

In one of the contests, Henry was asked what kind of powder he was using, as nobody had ever smelled powder like it. He told the other Game Protectors that I was loading his ammunition and that I inserted cream of wheat to hold the powder back.

About the next month or so Henry made the highest score he had ever made in these contests and another Game Protector, evidently envious of Henry's success, remarked that no wonder Henry was winning the contest each month—that old, gray-haired, left-handed Troy Dutchman was loading his ammunition with *breakfast food.*

J. A. Van Wie, Troy

VIOLATIONS

Dear Editor: In regard to your editorial titled "Violations," I would like to say that in my home state of West Virginia there is a list of all violators—along with a complete breakdown of the time they were caught, what the offense was, the amount of the fine and whether it was paid or not. This list appears in each copy of our Conservation magazine, and I believe it makes many a man think twice before he breaks a fish or game law in our state.

Joseph Morehouse, Rochester

● *We publish just such a list once a month and release it to all papers in the State. But we regret to report this this list is so long that we feel it would take up too much space if published in the magazine. Nevertheless, thanks for the suggestion.—Editor*

MAN TRAP

Dear Editor: Your article in the August-September issue on traps was very interesting. It surprised me to hear about the man trap and its being used so near where I'm stationed. Our base is only a few miles from Burford (England) where the traps were used.

Cpl. Jos. J. Gula, USAF,
c/o PM, New York City

THE FATE OF FLORENCE, A TOWN

● *Under the above title, we published in our August-September issue an article by Bernhard A. Roth of the Soil Conservation Service. We have received a good many letters concerning this article—mostly from residents of Florence (Oneida County) and vicinity, and mostly complaining about the "adverse publicity" received by the community. We forwarded these letters to Mr. Roth, who comments as follows:*

"The Fate of Florence" was a story about soils and land use, and their influence on agricultural economies. Its purpose was simply to point out that, here, as well as in every other part of the world, a *best use* and *best treatment* of each acre of land determine the best *type* and *quantity* of production, not forgetting the best interests of conserving soil and water resources.

Upon a background of experience that actually extends into prehistoric time, and more recent scientific surveying and experimentation, a system of land use classification has been developed. The system recognizes 8 separate major categories of land. Recognizing the kind of land, landowners assisted by technical conservationists are enabled to select the kind of enterprise that will insure optimum operational results and, at the same time, keep soils from washing or blowing away. This procedure is standard in over 2,300 soil conservation districts in the U.S.A. covering most of the Nation's farm country. The same system is being adopted in many foreign countries.

Largely due to careful application of this system, it is now possible for one U.S.A. farmer to produce enough for 14 consumers. Here, only one person in six works on the land. In Asia, on the other hand, four out of five people have to work on the land, even to furnish a bare subsistence diet for their populations. Properly managing and treating American land, in less than 20 years, the per acre yield of corn has soared 36 per cent; cotton 58 per cent; oats, 17 per cent; soybeans, 59 per cent; and potatoes, 68 per cent.

On the other hand, mis-use of land (failure to recognize its potentials and limitations) has destroyed or seriously depreciated the true values of millions of acres in the United States and abroad. Unfortunate methods of agriculture have invariably been the basis for land tragedies now well known—the various "dust bowls", floods, unstable water levels, gullies and wash-outs that are danger signs for a civilization which depends on a few inches of topsoil.

Wherever, in the past, the danger signs have gone unheeded, complete ruination almost inevitably followed. It happened where today one finds the "hundred dead cities" of the Biblical lands, in the Near East, in North Africa. Erosion attacked steep hillsides misguidedly cleared of trees and plowed. Unprotected soil blew and washed away. Farming became less and less productive. Populations declined or moved on. Great cities were deserted and crumbled into dust. Each succeeding century left its deposit of silt carried down from the bare slopes. Archeologists today dig down hundreds of feet to find buildings once erected at ground levels.

In the article in question, no personal criticism of Florence residents, past or present, was implied or intended. As to past use of the town's land, it was evidently based on farming and land practices widely accepted during the era—and is no more censurable than practices accepted elsewhere during America's early agricultural history. Florence farms today are well run; several are exceptionally well managed. The forests are magnificent, and have a real potential for timber production as well as outstanding wildlife and recreational values.

Florence is in a region of great natural beauty. It has good leadership and an integrity quite evident in the number of able spokesmen who have elected to comment on *The Conservationist* piece. It has contributed richly of its youth and talent for public service. To quote from a letter written by a Florence resident . . . "The township is a sportsman's paradise and, while we may not attract farmers, we are attracting people who are building summer camps and homes" . . .

With this kind of clear thinking, there is no question that Florence is capable of successfully working out its own productive economy and bright future for its children.

Bernhard A. Roth, Soil Conservationist

WATER CHESTNUT

Dear Editor: Our Saugerties home is on the banks of tl e Hudson; partly on Mynderse Cove. In connection with this, I am writing about a matter on which you may be able to help. This year there is a considerable growth of water chestnut on the surface of the Cove, and it seems to be spreading at an alarming rate. About two years ago, I understood the Army Engineers were making a survey of the Hudson River inlets in order to locate and eradicate water chestnut.

If in order, could your Department look into this and advise me as to what might be done either by the State or Federal Agencies?

J. P. Remensnyder, Saugerties

● *Our Bureau of Game Management, which is conducting a control project on this plant, advises us as follows:*

Water chestnut has become firmly established in the lower Mohawk and Hudson Rivers in recent years. Control measures were initiated in 1946 to eradicate this aquatic weed, and have been continued each year since. In spite of the best efforts of our technicians the plant has continued to spread, particularly downstream in the lower Hudson Valley. New infestations of the plant have also been located in Round Lake, Saratoga Lake, Lake Champlain and as far west as Keuka Lake near Branchport.

The control operations in the past have been directed at eradication of the primary infestation along the Mohawk and Hudson Rivers by the use of underwater weed cutters and herbicides of the 2, 4-D type. Various difficulties have been encountered with both methods. Spraying with herbicides, which proved to be volatile in nature, caused damage to agricultural crops on uplands adjacent to the rivers. Cutting the plants off under water set them free to float downstream and these plants often lodged in uninfected areas and, instead of dying as was expected, they continued to grow and produce seeds, thereby spreading the infestation.

The control work this year has been limited to eradication of the plants in upstream and tributary waters in order to prevent them from becoming firmly established in these new locations. In addition, experimental work is being conducted to determine the best method of eradicating this plant. New types of non-volatile herbicides are being tested and methods of cutting the plants and removing them from the water are being tried.

Present plans call for control measures being continued each year until eradication is complete. No decision has been made as yet as to whether the U. S. Army Engineers will provide any assistance in this work. As soon as adequate control methods have been developed and tested (and there's the rub), it is anticipated that an expanded control program will be put into operation to eliminate this plant from New York waters.—Editor

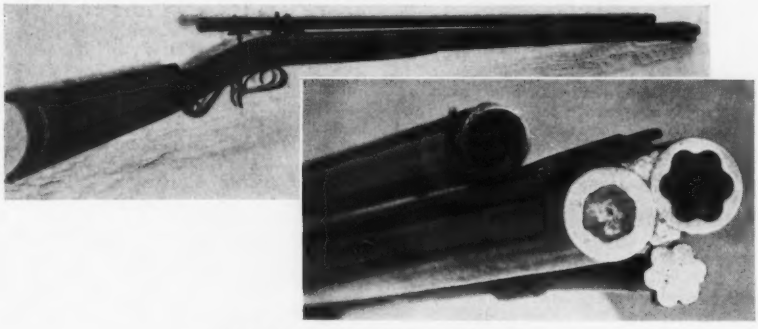
MOURNING DOVES

Dear Sirs: I would like to know why we can't have a hunting season on mourning doves in this State. In this section there seems to be a very large number of doves.

I have read where large numbers are killed when they migrate south and are classified as very good game birds. Could you give me any information on this? It appears as if we raise them up North so they can have better hunting down South.

Allen Cronk, Oswego

● *It appears as if maybe you've got a point there. But doves are a fairly recent addition to our list of game species in New York, and we think it would be a mistake to act too fast in declaring an open season on them.—Editor*



SEWELL NEWHOUSE, GUNSMITH

Dear Sir: I enclose some photos that were made for me of an odd gun made by Sewell Newhouse (the trap maker), probably in the 1860's, now in our historical collection. The rifle barrel has been greased and plugged and I once had a plug fitted in the fluted barrel, but it is gone.

Note the pocket for "patches" in the side of the stock. It is still full of patches left by Sewell.

This is the only one of Mr. Newhouse's guns remaining that I know about, and was given to me by his son. It is a double barrel muzzle loader made especially for Adirondack use. One barrel is a rifle, and the other is for buckshot, bored with a circumference of six half circles, like a six-leaved clover, each half circle to fit a buck shot. And surmounting the barrels is a telescope sight.

Although his son told me that the rifle and telescope sight were intended for grey squirrel hunting locally, I feel sure that Mr. Newhouse also had in mind deer hunting in the Adirondacks, for the rifle barrel will take at least a 40 caliber ball with a "patch", and the buck shot barrel could have been meant only for deer.

Steve Leonard Sr., Kenwood

OFF TO CAMP

Dear Editor: Believing as we do in conservation education, we feel justified in being a bit proud of the accomplishment of one of our member clubs in sending 16 of their junior members to Conservation Camp during this past summer.

This was a project of the Earlville Conservation Club, Earlville, N. Y. We enclose a photo of the boys taken just prior to their leaving for camp.

Our thought is this: that a brief mention of what a small rural club (pop. around 1,000) can do might be an inspiration to other clubs throughout the State.

DeVere A. Card, Hamilton,
Affiliated Sportsmen's Clubs
of Madison County

● *We hope so. And the boys look like good prospects.—Editor*

NATIVE NESTERS

Dear Editor: In your June-July 1951 issue, the opening paragraph of the article "Duck With a Helmet" is somewhat misleading in stating that only four varieties of ducks consistently "play house" and raise families. The American Merganser is a regular breeder in the Adirondacks and so is the Red-breasted Merganser and the Goldeneye. (Three rare breeders in New York State are the Bluewinged Teal, Gadwall and Shoveller, according to Crutleshank's and Dick Pough's latest books.)

Granger Davenport, Montclair, N. J.

● *I had not thought that it would be misleading to say that only four kinds of ducks "think enough of what we (New York) have to offer to stick around in the spring consistently and play house", especially after saying in the previous sentence that "most kinds have nested with us at one time or another." The mallard, black duck, woodduck and hooded merganser are the ones we listed as consistent housekeepers in New York, and all our data over many years seems to bear that out.*

The other two mergansers and the goldeneye mentioned by you are fairly regular nesters, but they by no means are as consistent as the other four. Sorry if we're responsible for any misunderstanding.—Clayt Seagears

JELLYFISH

Gentlemen: Referring to Mr. Antemann's letter in the October-November 1951 issue, in which he speaks of fresh water jellyfish in Garnet Lake:

I have observed exactly the same organism in Twin Lakes at Milford, Pa. The lake was adjacent to Camp Sagamore. It was about August 1940. These jellyfish occurred about a foot below the surface and not too far from shore. They definitely pulsated and were not given movement by the waves. I wrote of my observation to "Field and Stream" and they seemed to think they were a jellyfish.

Pardon me for mentioning Pennsylvania, but being that Milford is so close to New York I thought it would be okay.

Donald W. Palmer, Riverdale

● *Thanks for the information. And that's all right about mentioning Pennsylvania. But we bet our jellyfish can lick their jellyfish.—Editor*

PINE NEEDLES

Gentlemen: I note that three of my young pines have quite a number of dead needles and am wondering if this is a sign they are dying; also if it means that I will loose the whole row of pines which I have planted on my back lot.

If you think this is some sort of a disease, can you recommend anything to prevent it from spreading to the others?

H. Hendrickson, Kingston

● *The chances are that this is the normal dying of the old needles which takes place in the fall. You can check on this by examining the trees again, to determine whether the needles affected are the ones farthest down the limb. If it is these which have turned yellow, while the needles near the top of the limb are still green, you have nothing to worry about.—E. W. Littlefield*

COLLECTING FOR DAMAGES

Dear Sir: Is there any chance of collecting or having repairs done to a truck if a deer runs into the front of the truck and does quite a bit of damage?

Arthur Kemmet, Schuylerville

● *In this State, no chance.—Editor*

CREDITS

Second cover, pages 9, 26, 27, 37, Nick Drahos; 10, 11, Fred Chambers; 12, 13, 20, 21, 40, Clayt Seagears; 14, 15, Doug Finch, W. J. Hamilton, Jr., W. J. Schoonmaker; 16, 17, Fred Everett; 18, 19, "The Microscopy of Drinking Water," G. C. Whipple; 22, 23, Fred Chambers, Adirondack Photo Service; 30, 31, Earl McGuirk; 34, Barnett Fowler, Fred Chambers; 35, Doug Finch; 38, Milford Newhouse.

TRAPPED!

Gentlemen: Personally I think The New York State Conservationist is the most interesting publication in this country. Consequently, it was a horrid shock to me to see in your last issue a picture of one of our *Havahart* humane traps in the article on traps by Nick Drahos, and then read under this beautiful picture the entirely erroneous information that the trap is made by our good friends, The Animal Trap Company of America. After all, we are a New York State industry and the Conservation Department has purchased plenty of *Havahart* traps from us. A couple of photos of the trap in action are enclosed.

Did you know that no people or tribe has ever been found so primitive that it has not devised some method of snaring animals? Our *Havahart* traps are based on a design developed in England, certainly before the 17th century. This design was taken from England to Germany by an English gamekeeper who was imported by a Bavarian landlord to rid the landlord's estate of undesirable animal visitors without killing or maiming the desirable types. The design was brought over here by a Bavarian immigrant, and with a few improvements and modern materials became our present trap. So it seems that the same reliability of the original design which Mr. Drahos noted in regard to the Newhouse trap holds for humane traps as well.

Fox B. Conner, President,
Allcock Manufacturing Co., Ossining

● *Sorry; I knew better, and just slipped up. As yet, I haven't had a thank-you letter from the Animal Trap Company for crediting them with a famous addition to their line.—Nick Drahos*

FOR JACKING? NO

Editor: On page 31, June-July issue is a gadget called a "deer jacking lantern." The only use I can see for it as a jacking light would be to frighten the deer to death or at least to make it jump out of its hide and thus eliminate skinning of it, if and when it could be found.

This light would expose the hunter, the boat and the paddler and you would never see the deer, much less get a shot.

This light was designed to spear fish by—pickerel and pike—on the marshes in spring during spawning. And for pickerel, pike, bass and other fish in shallow water in summer and lake trout and frost fish in the fall.

This is the second one I have ever seen. The first one I made from an old tin coffee pot. The tubes were from an old candle mold. Mine has only six tubes soldered to the 1½ gallon pot. The reason for the six tubes was that there were only six tubes to the mold. The spout was removed and the holes were patched. The lid was left intact.

L. H. Gillies, Nantahala, N. C.

The Lynx is Back

EVERY so often in the outdoors business (which to us is the most fascinating in the world) something of rare interest crops up. This time is was a Canada lynx—a New York Canada lynx, which officially has been defunct in this State since 1907 when two (now in Cornell University's collection) were taken near Ithaca although a lynx (source unknown to us) was exhibited alive by a farmer near Warrensburg in the middle '20's. This new record came from Washington County, Nov. 22 when the animal made a mistake. It chased a snowshoe rabbit in front of a 16-year-old deer hunter named Harold King of Fort Ann.

Every year hundreds of reports that somebody or other killed a Canada lynx reach this office. Until now it always turned out to be a bobcat, a local character (see CONSERVATIONIST Dec.-Jan. '48-'49) frequently confused with the other.

As far as we know, there are no photographs in all the great quantity of wildlife literature showing freshly taken examples of the two species together so that there can be no possibility of error in identification. This is because both cats are somewhat difficult to collect, they usually aren't found on the same range and nowhere are they abundant, especially the lynx. Anyway, here they are, the lynx and a bobcat, cousins but with wide physical differences, as you can see.

Following is the record of the lynx, officially back again after an apparent absence of nearly a half-century:

One jumbled range of the Adirondacks towers east above Lake George, its rugged southern foothills dropping down to the lowland route of the Champlain Canal. One of these foothills is Battle Hill, north of Fort Ann and midway between Lake George Village and the Vermont border. The Adirondack Park boundary is close by—and so are deer and some of Washington County's best snowshoe rabbit country.

On Thanksgiving Day, King and another young hunter climbed up the wild slopes of Battle Hill, separated, and sat down on good deer runways. Pretty soon a snowshoe rabbit raced by close to King. A minute or two later what he thought was a bobcat bounded up along the rabbit's track. King forgot about deer and shot it. But it looked like no ordinary bobcat and finally it reached the Conservation Department's Albany office for positive identification. It was a lynx all right.

A dozen of us made up a pool on its weight. Guesses averaged over 40 pounds and ranged up to 60. On precision postal scales with all hands looking on, the cat weighed exactly 27½. Later, at the Wildlife Research Lab., a freshly-killed snowshoe rabbit, weighing around three pounds, was found in its stomach. The lynx, an old female, was very fat. Average weight for this species, mostly northern Quebec and Labrador records, seems to be around 22 pounds, less than the bobcat, although the oversize feet and longer legs and fur make the lynx *look* larger.

We took the lynx home that night to measure, draw and photograph, deeply regretting that no longer on hand for comparison was a bobcat we had the previous week and which weighed a mere half-pound more than the lynx. But luck held and a half hour later an Albany hunter brought us one he had just killed in the Catskills. It was a young specimen, weighing only 13 pounds, but it had adult-size feet and typical ears and tail. So it served the purpose—as the photos show.

Some measurements of the lynx were: length nose to tip of tail bone 37¾"; tail 4⅜"; hind foot 9⅜"; length legs outstretched front and back 65½"; height at shoulder 19"; ear length 3⅛"; ear tuft longest hairs 2"; front foot track 3⅞" x 4½"; rear foot track 3⅜" x 4"; length front leg toe to elbow 13⅞"; rear leg toe to groin inside 22½"; girth chest back of front legs 15"; girth loin front of rear legs 11⅜"; typical fur length 3¼"; weight 27 lbs. 8 ozs.

P. S. As this was being written, a 6½-lb. monkey-like critter with a long prehensile tail was brought in. It had been shot by a deer hunter in the wild Berne hills west of Albany. Its stomach held several hundred weed and apple seeds, some fragments of beetles. It was a South American Kinkajou. Now we've seen everything.

—CLAYT SEAGEARS

Canada lynx ♀
taken Washington County, N.Y.
November 22, 1951 Wt. 27½ lbs.
CLAYT SEAGERS

CROSSBILL *Loxia curvirostra minor* (Brehm)

IMMATURE MALE ADULT MALE

FEMALE

WHITE-WINGED CROSSBILL *Loxia leucoptera* Gmelin

IMMATURE MALE FEMALE

MALE

Courtesy of the New York State Museum All ⅝ nat. size